BULLETIN OF THE

TAYLOR SOCIETY

A SOCIETY TO PROMOTE THE SCIENCE AND THE
ART OF ADMINISTRATION AND OF MANAGEMENT

PART II

OF

PROCEEDINGS

OF THE

MEETING OF THE TAYLOR SOCIETY

HELD AT

ROCHESTER, N. Y.

MAY 6, 7 and 8, 1920

Engineering Societies Building
29 W. Thirty-Ninth St.
New York

AUGUST, 1920 VOL. V, No. 4

OCT 15 1920

fact it is in just such efforts that unexpected, big, new things are brought to light, and the entire membership of the Society will back the committee in its work and will cooperate in securing and analyzing data, and in passing judgments on alternative proposals.

BECAUSE so many discussions of the problem of industrial relations are merely expressions of what the participants think ought to be done, it was a relief to hear from Dr. Jacobstein and Dr. Leiserson explanations of what is being done in one place and of some of the intangible temperamental elements involved. The Rochester plan, which is a special phase of a larger joint plan of employers and employees to work out together mutual problems, is of the greatest significance. It may or it may not survive, and if it does survive it may develop important modifications; but at the present moment it looks like one of the most promising experiments in the whole field of industrial relations. The leadership of the Amalgamated Clothing Workers of America, the leadership of the associated employers and a score of engineers and other individuals concerned, are to be congratulated upon the vision and the practical sound sense manifested in the experiment. Dr. Hopkins' address is the inspirational argument of a man with wide and successful experience in industry, particularly in the field of industrial relations, and with that vision of social evolution possessed by educators; an argument which may be summarized in the statement that for the concept of the "working man" we must substitute the concept of the "man working," with instincts to be given opportunity for expression, intellect to be given the opportunity for development, and self respect to be given the opportunity for satisfaction. "One day going through the halls of the building where I was at work, I met one of the girls who was leading the strike, and I turned to her and said: 'What is it, anyway, you people are after?' She looked at me, and tipping back her head in a laugh, said: 'We are after just what we are getting,—the chance to sit down and talk over the business with you guys.' "

A WAGE SYSTEM

WHILE many different wage plans have been suggested by students of the science of management, such as Mr. Taylor's differential piece rate plan, Mr. Gantt's task and bonus, etc., we have never seen in print a description of the precise plan in use at the Dennison Manufacturing Co. It may be of suggestive value to other plants.

We have really two plans, each suited to work of a particular nature; but they have some details in common. All our rates are based on time studies, with allowances for fatigue, etc., and on carefully analyzed details of operation. All are the result of careful studies which have regarded with concern the various types of operators, the tools or appliances, the working conditions, the materials in use, and so on. The studies have all been made in consultation with employees.

All our rates have, furthermore, this idea in common: they are made up of two elements,—hour rates and reward for specific production. To our minds it seems a nearer approximation of justice in the setting of wages to have the reward for specific production only a part of the total wage. There are certain intangible personal qualities which can be rewarded in an hourly wage but which cannot be justly compensated for on a production basis. Take versatility, for instance: the specific value of operators with ability to perform two or more kinds of work may be difficult to determine. *Some* extra reward in the weekly wage is surely only fair recognition of the extra value of such operators.

In our particular business there happens to be a considerable variety of work, so that it is unusual for operators to be engaged for any long period on precisely the same work or in any case on the same product. Variations in materials, in details of operation, and so on, are of course covered in the production payment. The delays and the extra effort required *to change* from one class of work to another are better covered, to our minds, in the hourly wage.

We have made our wage plans consist of part hourly and part "piece;" that is, partly dependent on production. The hourly wage we have called "base rates" and the proportion of base rate to total wage is about 66⅔ per cent for medium skilled operators. In highly skilled operators it is, of course, much less, being perhaps as low as 45 per cent in some cases. The production wage is calculated to be about one-third of total wage, and is more than half the wage of the highly skilled.

The production wage is made up in two different forms. One is in the form of a piece rate for all production over a stated minimum. A "standard production" is calculated which must be attainable by approximately 75 to 80 per cent of all operators with three months apprenticeship and instruction. The "minimum production" is determined as 60 per cent of the "standard". All production above the minimum is paid for at so much per piece.

The other plan is to use the "standard time" itself, paying an hour rate for the standard time equal to approximately one-third of the total average wage.

1. The "base rate" is paid for actual time taken whether greater or less than "standard time."
2. The "standard time rate" is paid for "standard time" if the actual time is equal to or greater than "standard."
3. All time "saved," i. e., the difference between standard time and the actual time taken is paid for at the "base" rate *plus* the "standard time rate."

This approximates a regular piece rate plan. For instance, in case the "base rate" equals 20 cents per hour and the "standard time rate" 10 cents per hour:

Production	Standard Time	Actual Time	Total Wages	Rate Per Hr.	Rate Per Pc.
15 pcs.	15 hrs.	15 hrs.	4.50	.30	$.30
15 pcs.	15 hrs.	7½ hrs.	4.50	.60	.30
7½ hrs. actual time @ .20 for "base"					1.50
15 hrs. "standard" time @ .10 for "standard"					1.50
7½ hrs. "time saved" @ .20 for "base"					1.50
					$4.50

Thus, 15 pieces produced in either standard or less than standard time will equal to operator 30 cents per piece.

If more than standard time is required, the "standard time" only is paid plus the full actual time or the "base rate":

Production	Standard Time	Actual Time	Total Wages	Rate Per Hr.	Rate Per Pc.
15	15 hrs.	20 hrs.	5.50	.275	.366
20 hrs. (at "base" rate) @ .20				$4.00	
"standard" time—15 hrs. @ .10				1.50	

This gives 36.6 cents per piece, but only 27½ cents per hour, in contrast with 30 cents per hour for "standard time," or 60 cents per hour where double production was attained as in the example above. There is a very important point in such a use of time as determining the basis of wages. The "standard time" should be attainable by the big majority of operators of reasonable experience. When this is the case the "standard time" is *not of itself the goal* but the *bogey.* Operators are particularly interested in the extent by which they can "beat" the "standard time."

The rates can, of course, be set so that the earnings of the less skilled operators will approximate the "going" wages of the locality, and the more skilled will earn their proportionately higher wages by the shorter actual time taken for a given amount of work.

The "standard time rate" may be set to yield about one-third of the total wage, as suggested, and should be the same for all operators. The "base rates" may vary from the starting wage to anywhere from 33 1/3 to 50 per cent more than the starting wage; each operator earning his or her own "base rate" by personal worth as expressed by work, by experience, by attendance, by quality of performance, and other factors.

The piece rate plan is more adapted to the continuous or nearly continuous process although the "standard time" plan could equally well be used. The "standard time" plan is especially to be recommended where the work is constantly changing and many small jobs are done, or where the work varies constantly in its elements as in a variety of "special" orders.

It is under either of these plans necessary that continuous records of individual attainment be kept so that base rates may be determined in accordance with individual worth. Records of quality, of workmanship, of attendance, and of variety of work performed, should be kept up to date at all times.

A. B. Rich[1]

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[1] Dennison Manufacturing Co., Framingham, Mass.

PROMULGATION OF STANDARDS BY THE TAYLOR SOCIETY[1]

BY

WILLIAM O. LICHTNER[2]

I. INTRODUCTION

AT just this period in the growth of the Taylor Society it looks as though the most important work before it is the determination and promulgation of standards.

The Taylor Society, originally the Society to Promote the Science of Management, was a natural development. It started with the gathering in 1911 of a few men who had been in personal touch with Dr. Taylor. Some had known him intimately and had had the privilege of seeing him work and of working with him. It was natural that after his death and in his memory they should conceive of giving the Society his name. A nucleus being formed, growth was inevitable. Other men had studied his work and had gained therefrom an impulse to follow him.

The purpose of the Society is to accentuate and perpetuate Dr. Taylor's contribution to industry. What we are going to bring out this evening is a way of doing this. In other words, we are going to concentrate on the idea of the promulgation of standards by the Taylor Society, for we believe that it is in this way that Dr. Taylor's work can best be carried forward.

What was the essence of Dr. Taylor's big contribution to the world? At the Bethlehem Steel Co., for instance, thousands, yes, many thousands of dollars, were placed at his disposal for experimentation to determine standards. This work did not stop at the Bethlehem Steel Co., however. It has been perpetuated and the whole industrial world is availing itself of the results. But the principle that makes these results possible is the original principle—the determination and application of standards.

The Taylor Society is of course the last place in the world where there is any need of preaching a sermon on the abstract principle of the necessity of standards. Probably half of us spend half our time preaching this principle to our clients,—talking standards from morning to night. Nevertheless there is always opportunity for us to do a little housecleaning of our own. We are agreed on the fundamental principles for which we stand, as regards the science and the art of administration and of management. But we ought to be able to *define* all the principles on which we stand together, and agree as to certain models or ideals of procedure.

Of what would such a movement as we have in mind consist? The knowledge and experience of the members of the Society has already resulted in the establishment here and there of standards in individual plants. The movement we have in mind consists in the systematic pooling of this knowledge and experience and the making available of these to every other member of the Society, not only to its present membership but to its membership for all time.

Thus we shall be laying a sure foundation on which others may build, just as we have built up on the broad foundation laid by the father of scientific management. Unless they are thus grounded and have standards to which they can adhere, the younger men coming into the profession are sure to drift.

Let us keep well in mind that the Taylor system is not synonymous with a set of forms and practices which can be put into print and enclosed between two covers, and then applied to every concern. It is not a matter of visiting a plant where Taylor methods are applied, making a collection of their forms, taking them back to one's shop, and installing them. This doubtless sounds like a pure supposition, but novices and often experienced executives have been known to do this, and then have been inclined to curse the system because it did not work.

Another thing the Taylor system does not do is to force upon every organization with which it comes into contact, all the standards that have been set up in its name. On the contrary, all equipment already in use in the plant should be utilized as far as possible. It is the use of knowledge and experience to adapt the standards to the particular plant.

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[1] A paper presented at a meeting of the Taylor Society held at Rochester, N. Y., May 7, 1920.

[2] The Thompson & Lichtner Co., Boston, Mass.

In a degree the process of management work is common to all plants. Thus this harvesting of experience and practice would be of immense benefit to the client as well as to the engineer. Furthermore, we believe that such an institution as is proposed for our Society would make an appeal to the executive. He would feel that something tangible is being brought out. At the same time he would see that the ideals of the Society are broad and its aims far-reaching, that it is made up of engineers who are pooling their knowledge in the interests of industry. We believe that such an effort successfully carried on would thus convince the heads of industries that it is worth while for them to ally themselves with such a body. Most important of all, it would help to establish our position as true representatives of Dr. Taylor, whose work was never for the day or for the year, but for the permanent, far-reaching achievement.

What Dr. Taylor accomplished meant many sacrifices, and affords the finest example of the fact that when a man is impelled by the right motive his thought is not that the benefits of his labors shall be for himself alone. If then this undertaking, which we can only briefly indicate tonight, shall mean some additional effort on the part of each of us, I believe we have enough breadth of vision so that we shall not falter before the task.

Some of you no doubt are saying: Yes, that sounds good, but is the undertaking practicable; how can it be worked out? After all these contributions of data are brought together how can they be utilized; how can these standards be established; just how can they be permanently available?

The main heads under which we have treated this subject of promulgation of standards, and which the author feels should have foremost attention in any organized efforts for such promulgation are:

1. Standard Terms
2. The Functions and Executive Titles of a Standard Organization.
3. Policy on Bonus Payments
4. Policy on Base Rates and Total Earnings.
5. List of books for Reference in Industrial Management.

This idea which I am proposing tonight is not anything new, for years ago when the Society was first formed we had discussions on methods of accumulating data, i. e., the actual times determined by time study used in the establishment of standards, and of putting this into a shape that would make it generally available. The task looked so big, however, and the members capable of combining on the undertaking were so busy with actual performance, that the matter ended where it began.

The idea was good, except for the fact that we were trying to develop a finished product before laying a foundation upon which to build this ideal. No one would expect to develop a champion football team, which requires a perfect understanding between all the men no matter what may come up, without training them first in the rudimentary principles of the game, and by their actually doing some real practice, teaching them how to work with the others. It means two things: first, that a body of men with the necessary qualifications have banded themselves together with a definite object in mind; and second, that they take the time necessary to develop the technique.

In our first endeavors we thought merely of the finished product, which will develop later from the foundation which we should now try to lay.

II. PLAN OF PROCEDURE

Several members of the Society have received advance copies of this paper, and have been asked to prepare a written or verbal discussion of it. This should form a basis for discussion tonight, which in turn should arouse the interest of those who have not had this same opportunity. It is not to be expected, and it would not be possible, to reach definite decisions tonight, but it is proposed that this material be turned over to a committee whose function it shall be to make a study of the subject, then plan a campaign for getting together the practices of the various members and then decide on definite practice. Their plans can finally be submitted to the Society as a whole for revision or adoption.

With the proper development of this procedure, the next point would be to have sent in copies of time study data and rates set from those data. Some practical plan for making a study of the conditions under which the data were taken and developed would be devised, and eventually the Society should be able to accomplish the big object, which, as stated above, we discussed shortly after the inception of the Society. This plan seems entirely practicable, because it is similar to the development in our own organizations, in which we have men on the jobs who are actually taking the detail time studies and working them up, while other men review the data, and thereby check the conclusions or throw such light upon the work as to insure their correctness. The amount of data then gathered from the various plants, although the character of the work might vary, would have some operations in common or very similar, so that the data obtained could be used at least for checking and in some cases would be interchangeable.

The first thing which is required when a body of men get together is a common language. This, then, is my first consideration. The terminology which we are to adopt is important because we shall find that we have involved in our terminology the underlying practice we are using. Several years ago the company with which I am associated, in our own organization, started to standardize our terminology, and after getting this into fairly definite form, I took up the draft of it with the members of our organization, expecting to be able to go through the terms in about an hour, as we had all given the subject considerable thought. To our surprise we worked over these terms for five hours. The thing that most amazed us was the many phases of management brought out in our discussion of some particular term.

III. STANDARD TERMS

The dictionary that defines the words which people use is prepared for the purpose of creating a mutual understanding among men. Without a dictionary, we should have no way of being sure that the same word always means the same thing. Occasionally a new word is coined by some one and becomes popular, and we are not surprised as years go by to see it appear in the dictionary. Others, however, are coined and used by a multitude of people, and still they never appear in the dictionary.

A great many of the terms used in the industrial world are not in the dictionaries, or when they are, they are defined only in a very general way. This lack of any source for finding the real meaning and significance of industrial terms is a decided hindrance to a mutual understanding among industrial people, because it makes it impossible for them to be sure that the same term always means the same thing. Accordingly it seems worth while for us to define a few of the common terms as a start, let us say, toward an industrial dictionary!

We have all had the experience of visiting plants other than our own and noting the differences in the use of the same terms; sometimes a cause of much confusion. It interferes to a large degree with the easy interchange of ideas between the members of the same or of different organizations. Let me give you a pat and rather amusing illustration.

At a meeting of a group of industrial managers at which an official of a large corporation was present, a paper was being discussed on a special feature of the bulletin board (or planning board, as we call it). This executive became very nervous listening to a lot of detail which meant practically nothing to him. As soon as he could, he got up and stated that at his plant they had a bulletin board which had been working successfully for several years which did not require all the red tape which was evidently necessary with the one being considered by the meeting; that all they had was a plain, ordinary blackboard on which they could either write with chalk the announcements they wanted to make, or post them on the board by means of thumb tacks. Now, what could be simpler? Why the necessity for having special printed tickets on which to write, and then posting these on the bulletin board?

Now, setting up standards of terminology or any other kind of "ology" is not a substitute for judgment or common sense There are cases where, for instance, the organization is so constituted that every member has learned from the minute he entered the business many years ago that a "schedule" is an order upon the factory to manufacture a definite amount of goods of a definite kind. It may cause confusion for months, or even years, among the employees in some particular plant, because of the caliber of the workmen, to effect a change in the term. Such a change would probably be readily understood and adopted in ninety-nine per cent of the plants, but in the one particular plant common sense dictates that owing to the kind or class or nationality of men we are dealing with, the changing of this apparently erroneous term would be inadvisable.

Some concerns have made so many changes in terminology that they have wrought up their organization to an attitude of resenting the suggestion of another change. And even more will they resent going back to some term already used and discarded.

Where the constant changing of terms has brought the organization to a point of confusion and irritation, judgment must rule against the advisability, under other conditions, of still further changes.

Just one more instance which occurs to me. If a company has established a Control Department which will be developed later on into what we should call, according to our standard term, a "Planning Department," it might be very injudicious for the client to change the name to Planning Department, it might actually hinder the development. On the other hand, in the same plant, a change from the term "tickler" to the term "reminder" might be accepted and adopted very readily, because the word "reminder" is much more significant than "tickler."

Now, we have been facing some of the difficulties in the individual plants but we have not been saying that "It can't be done." A standardizing of terminology is not an impracticable thing. Because "my plant is different," true as this may be, is no reason whatever why any of us should not be ready to cooperate in this undertaking. There are two possible plans of procedure:

1st. To have all plants under Taylor management change their terminology to conform with the Taylor standards;

2nd. To have individual plants retain all their established terms so as not to irritate the members of an organization.

As to the first plan, no one will question that the ideal way would be for every plant to change the terminology already in use, without reservations or personal preferences, once we as a Society have agreed on and accepted a standard. This would suit us perfectly, and would mean that every plant would be doing just the correct thing.

However, let us give this familiar phrase "my plant is different" a moment's consideration and admit that it expresses a fact which must be regarded. The second plan—to have each individual plant retain all its established terms—represents the extreme recognition of this fact.

Probably then the best way out of the woods is to combine the two, to introduce the terminology conforming with the Taylor standards wherever this is practicable, that is, wherever it can be done, without irritating unnecessarily the members of the organization.

The following illustrate what I mean by standard terms and standard definitions:

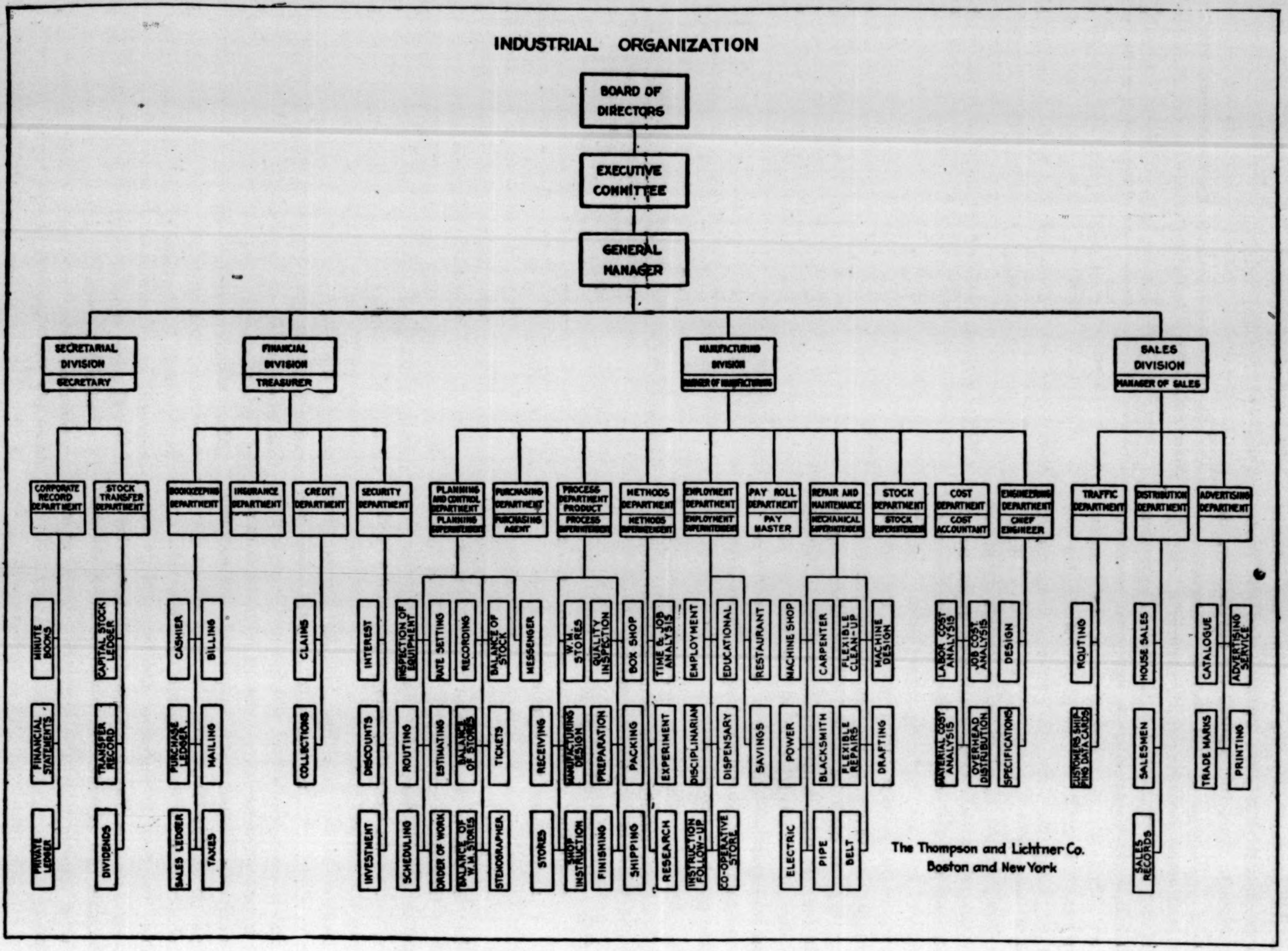
Absence	Not present during working hours.
Absence Card	A 4¼ x 4¼ red card printed in black ink placed in the ticket rack when employee is absent. The time is stamped on the back of the card at the beginning and at the end of each absence, giving a complete record of the particular employee's absences.
Absence List	A list furnished by the Schedule Clerk each day, giving the names of all absentees.
Absence Ticket	A 4¼ x 4¼ white ticket printed in black made out by the Ticket Clerk and signed by an employee arriving late or leaving early. It is then time stamped on the Time Recorder.
Absence Stamp	A rubber stamp with the word "Absent" in outlined letters ⅜" high and 1½" wide, used by Ticket Clerk in stamping time tickets of employees who come in late in the morning, not to exceed, as a rule, one-half hour.
Apportioning Stores	The setting aside on the Stores Record for future use on a particular order in the manufacture of the product, of materials or partially manufactured materials.
Apportioning Stock	The setting aside on the Stock Record for future delivery on a particular customers' order, of manufactured materials.

(One hundred twenty-two additional specimen definitions contained in Mr. Lichtner's manuscript are omitted in the printing. The original is on file in the office of the Taylor Society and may be consulted by anyone who is interested. Ed.)

IV. THE FUNCTIONS AND EXECUTIVES TITLES OF A STANDARD ORGANIZATION

Every business has necessarily a plan of organization which presumably is understood by the officials of the company. Very often, however, things come up which bring forcibly to their attention the fact that the functions of the members of the organization have not been clearly defined, with the result that when something goes wrong, each one can pass the buck to the next one.

Many concerns realize this but put off having the organization clearly defined, for they fear that since the business is developing and someone who has been with them for years is filling a certain position, it would cause hurt or hard feelings if the true status of affairs were really known. In other cases the organization may have some "weak sisters" holding down big jobs who would have to be given subordi-



The Promulgation of Standards by the Taylor Society. Fig. 1

nate positions if an organization chart were drawn up showing just how the organization should function.

Instances may be cited where the head of the business in reality functions in all capacities, and for this reason places a soft pedal on any suggestion for getting up a chart to cover his organization. In one concern there were so many vice-presidents to be given jobs, all of whom had naturally to be given an equal footing, that it was soon decided that it would never do to exhibit the organization chart which had been duly drawn up, so that it just disappeared from the scene and never again came to light.

The organization chart as submitted herewith (Fig. 1) is not proposed as a "cure-all" for every possible lineup of organization. Modifications and amplifications would of course need to be made to adapt it to particular industries, and, especially, to extremely large or extremely small corporations. In a general way, however, we contend that it is applicable to every organization.

This organization chart divides the organization first into four major functions called "divisions." These are functions under one head, the General Manager, the latter term replacing what is sometimes termed the "Works Manager" or "Plant Manager." The argument against the use of the terms "Works Manager" and "Plant Manager" is that they both connate only the actual building where the manufacturing is carried on, thus causing confusion.

The titles of the men (who are generally officers of the company) controlling the divisions are as follows:

Financial	Treasurer
Secretarial	Secretary
Sales	Manager of Sales
Manufacturing	Manager of Manufacturing

We may say, in passing, that in some organizations high sounding titles are handed out to a large number of men, whether or not they are holding positions which warrant anything of the kind. This is obviously bad practice, tending to establish false values and to arouse suspicion that the titles are given instead of the real thing—sufficient salaries.

The departments function directly under the divisions. Your attention is particularly called to the following fact: that the Pay Roll, Cost and Purchasing departments function under the Manufacturing Division.

The reason that the Cost, Purchasing, and Pay Roll departments should function under the Manufacturing Division is that the Manager of Manufacturing is not only responsible for getting the work through the factory and out the back door, but he is responsible for what this costs.

This question of costs of producing is so closely tied up with the question of producing that the Manager of Manufacturing should have jurisdiction over the Cost Department.

The cost of production is partly a question of wages. Therefore, the Pay Roll Department should also function under the Manager of Manufacturing.

Since the Manager of Manufacturing is responsible for the amount it costs to produce, and the price of materials and all purchases enters into the cost, the Purchasing Department should also function under him.

In several of the industries, as, for instance, the garment business, the purchasing of the cloth is done by the President or General Manager, many months ahead of the season in which it is to be used. This is a peculiarity of the business in the nature of speculative purchasing, and does not in any way change the location and responsibility of the Purchasing Department, as shown on the chart. In this case the Purchasing Department purchases only such things as findings and other necessary stores material—standardized or routine purchases—corresponding to that generally purchased by the department.

The Purchasing Agent in many plants also controls the physical handling of the stores, which is generally bad practice. The handling of the stores records is done under the jurisdiction of the Planning Department, while the physical handling of the stores is under the control of the Process Department.

The Process Department should be concerned first, last and always with the actual manufacturing of the product. After the goods are made, they are then known as "Stock" and should be handled by the Stock Superintendent, who is in charge of the Stock Department. The records of the stock should be kept by the Planning Department, as these records are used by that department in functioning in the capacity of planners.

The last feature which I wish to bring up particularly is in regard to the function of planning the work for Repair and Maintenance Department. This should be under the jurisdiction of the Planning Department. I believe that anyone who has given any thought to the question will see the reasonableness of this arrangement, and will also realize that it is a feature of management work which cannot be taken up and disposed of over night, but requires constant and continued attention.

The functions of the departments should be further divided into sections, as shown by the chart.

V. POLICY ON BONUS PAYMENTS

Every company should formulate a definite policy as to the principles on which it bases the payment of its employees. This is most essential before any of the employees are started in on any new method of payment which differs from that under which they were hired and have been working. Only too often do we find ill feeling existing between employees and the management due to the fact that there is a misunderstanding between them which could have been prevented had the management taken the time to clearly formulate its policy in writing. Furthermore, after this policy has been written up in definite form and taken up with the employees, it should be posted in every department working under the plan.

I submit the following policy governing bonus payments, which we have recommended to clients and have seen worked out with entire satisfaction. I therefore feel that it is worthy of consideration in connection with any undertaking to promulgate standards by the Society.

1. *TIME ALLOWANCE*

A. A standard time will be set for all major operations of the department.

B. Additional time will be allowed to compensate if any abnormal or unforseen conditions arise on a job on which a standard time has been set.

C. Each new employee who is put under instructions upon going on a job of bonus work will be given additional time allowance. The amount of additional time and the period over which this time applies will vary with the skill required to do the work, the length of time operator has been on the operation, and number of changes in the method of operating adopted as standard.

D. A bonus will not be paid on the extra allowed time, but only on the *Standard Time* in which the work should be completed.

2. *MONEY PAYMENTS*

A. A base rate or rate per hour will be set for each operation of the department. Each operator will receive the base rate of the operation on which he is regularly employed.

B. The bonus will be a percentage addition to the Standard Time provided the time taken to do the job is equal or less than the time allowed, otherwise the operator will be paid at the base rate for time taken.

C. When starting on bonus work, an operator who does not earn more than his present rate will be guaranteed this rate for a period of not more than three months. This will be called his Guaranteed Rate.

D. When a bonus worker is required to work for *less than a day* on work of his own class which cannot be put on a bonus, he will be paid the Base Rate for the time actually put in on the work.

E. When a bonus worker is required to work for a *day or longer* on work of his own class which cannot be put on a bonus, and if he has been earning his bonus 75% of his total working hours for the past period, he will be paid on the same basis as the average of his past month's earnings.

F. When a bonus worker is transferred to a different class of work, he will be paid the Base Rate and Bonus on his regular work, provided the work is done within the standard time unless he can make more money on bonus on the new job.

G. In case a bonus worker makes a mistake in his work and does not rectify it at the time he does the work, he will not receive his bonus.
No bonus worker will be given additional time to correct his mistake.
If any work is discovered to be faulty by another department, the amount of bonus paid for the job in which the work is faulty will be deducted from bonus earned and not yet paid.

H. The overseers or foremen will be on a Day Work basis with no bonus payments, as they represent the company and are responsible for the quality and quantity of the product.

VI. POLICY ON BASE RATE AND TOTAL EARNINGS

One of the big industrial problems of the day is how to determine what a fair day's pay should be. Here again the members of this Society should come together on some established plan of procedure. I shall not attempt to lay before you tonight any finished product, but will present a policy which has proved out not only in theory but in practice.

We all recognize that the base rate which is paid an employee should be a rate which is equivalent to a fair day's pay. Everybody should be willing to do this much, at least; and on the other hand, if a man receives a fair day's pay he should be willing to give a fair day's labor for it.

Furthermore, an additional compensation should be paid the employee over and above the base rate, provided his work is of the required quality and quantity. A bonus should not be paid in place of wages, nor unless it is earned through application and because the work is of determined quality.

The policy of "Base Rate and Total Earnings" referred to is as follows:

1. *BASE RATE*

The base rate should be the average rate paid in similar industries in the particular vicinity in which the industry is located.

2. *BONUS*

A. The bonus should be paid as an additional compensation over the base rate to reimburse the employee for good quality and quantity production.

B. The bonus should not be paid in place of wages.

C. The smallest bonus which should be allowed employees is 20% of the amount of the base rate.

D. A bonus should never be referred to as *lost,* but as "not allowed" or "not earned".

3. *EARNINGS*

In estimating the amount of earnings of employees when on bonus work, it should be figured that they earn their bonus in 85% of the jobs assigned to them. Conditions arise on every job making it impossible to give all the employees bonus work 100% of the time, and even the best workers may not make their bonus 100% of the time.

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VIII. DISCUSSION

H. K. HATHAWAY[1]: To the older members of the Society it is unnecessary to say that I am heartily in accord with Mr. Lichtner in all that he advocates in his carefully prepared paper. As I recollect it, in the early days of the Society whenever the president was unable to get anyone to present a *real paper* it was my duty to "just talk about something." On such an occasion about eight years ago I talked about something which then appeared to me to be of vital importance and I feel that it is of even greater importance today. My remarks were printed three and a half years later in the BULLETIN of January, 1919, under the title of "Field of Activity of the Society," and I want to enter them as my discussion of Mr. Lichtner's paper. Nothing has happened in the past six years, and I greatly fear that six years from now some other member will present another paper advocating what Lichtner and I have already advocated.

In 1916 I presented a paper in the A. S. M. E. entitled "A Proposed Plan for the Activities of the Machine Shop Practice Sub-Committee," advocating the collection and codification of data and the promulgation of standards relating to machine shop practice. Still not satisfied I read a paper more or less along the same lines before the American Foundrymen's Association in the fall of 1916.

No action so far as I know has resulted from any of these efforts, and I am inclined to feel as a result of these experiences and what I have seen of the committee method of doing work, that little is to be hoped for unless some means is found for financing the undertaking on such a basis as will permit the placing of a competent man at the head of it with sufficient funds for meeting the expenses incident to the work.

I also recall that at an earlier meeting during the Society's "informal" days—I think in 1910 or 1911 at the Philadelphia Engineers' Club—Mr. James M. Dodge offered to contribute to the Society's archives copies of all the Taylor System data of the Link Belt Company. This was in response to a plan similar to that advocated by Mr. Lichtner, proposed by Mr. Wm. Kent. At that time nothing could be done as the Society's headquarters were in Bob Kent's hat—or his brief case.

Taylor used to get a single company to put up the money for experiments leading up to the promulgation of standards such as he and Barth established for cutting metals. Can the Society do as much as Taylor did? Where he got one company to bear the expense alone can we get a group?

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[1] Consulting Engineer, Philadelphia, Pa.

To me it seems terribly wasteful to have a man like Mr. Barth devoting his time to making isolated developments of the Taylor System. He ought to be working for the Society along lines such as those suggested in Mr. Lichtner's and my earlier paper, or better still (and what would be more probable) along lines which he himself might lay out.

I am glad that Mr Lichtner has revived this important question and hope that others may continue to do so, keeping it alive until the ways and means can be found for its accomplishment.

Carl G. Barth[1]: I believe that this is a timely paper. Some standardization of the terms used is decidedly desirable; but I see a great many difficulties in the way of such standardization to the length proposed. Before we standardize our terms, we must first standardize the methods and appliances to which the terms apply, so far as possible; and it appears from this paper that Mr. Lichtner, who never had the opportunity to learn directly from Mr. Taylor, on the one hand uses methods and appliances originally used and recommended by Mr. Taylor but since discarded by some of us who were nearest to him; while he, on the other hand, uses certain methods and appliances that show lack of knowledge of certain of Mr. Taylor's practices still rigidly adhered to by some of us.

Now, my idea is that nobody has any right to take a very strong stand on principles, methods, appliances, terms, etc. to be used in connection with scientific management, who does not know any more about their origin and history than what he has gathered from what Mr. Taylor found time to write before his untimely death, or from casual surface observations of what has been done by one or the other of his direct disciples, or by numerous pretenders of the second and third crop.

It seems to me, therefore, that we should first get together and discuss some of our diversified practices; and in doing this, we should always go back to Mr. Taylor's own practices, and readapt them whenever definite improvements cannot be shown in deviations practiced. This is only what our sense of loyalty to our master should prompt us to do, and also loyalty to his principle that, once a practice has been established, it should be adopted as a standard and strictly adhered to as such, until somebody who has actually used this standard can suggest improvement that by a competent judge are recognized as sufficient to warrant their adoption in a new standard. For example: Among the terms Mr. Lichtner suggests to confine to a single use as against two or more uses, he contends are now in vogue, is "Bulletin Board;" but as Mr. Taylor never tolerated what is ordinarily understood in an establishment by this term, and insisted that no notices be posted, but that everybody concerned be notified directly by his foreman,—he never had any misunderstanding about the use of this term. Hence, before we discuss the use of the term "Bulletin Board," it behooves us first to agree upon an approval or disapproval of Mr. Taylor's opposition to broadcast notices on bulletin boards.

Mr. Taylor's bulletin board was the glass covered and locked-up cabinet in which he posted his flexible order of work for the information of both foreman and workers. While I have retained the general plan involved in this, I have long since done away with the glass doors and lock, for I have never had the difficulty of men wantonly tearing down what has been posted on an open bulletin board, which Mr. Taylor had in his earlier days, and which I happen to know from his own lips was the only reason for the glass cover. Still, those who do not know this fact often adopt the glass covered bulletin board as a distinctive and necessary feature of the Taylor System, when there rarely, if ever, is need of it any more:

Mr. Lichtner: Why don't you write these things down so that we may all know them?

Mr. Barth: That is just what I still hope to do before I die.

Wm. D. Hemmerly[2]: Mr. Lichtner has so completely covered his topic and the subject has been so admirably discussed that there is not much more that I can attempt to add. There are, however, several salient phases that are outstanding.

There can be no doubt as to this being an opportune time for the Taylor Society to take some specific and concrete action along the lines suggested by the paper.

During my twenty years experience in assisting in the introduction of Taylor methods—and this period embraces my connection at the Bethlehem Steel Company during the Taylor regime, as well as subsequent associations with Gantt, Hathaway, Coburn and The Thompson and Lichtner Company—I have often realized the need for some definite standard of terms, forms, devices and routines. True enough, there is a limit to just how much of such standardization is possible, or even practical, but just as in Mr. Lichtner's illustration of the discussion of the "Bulletin Board," so in many other ways is the client misled by erroneous or hazy names.

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[1] Consulting Engineer, Philadelphia, Pa.

[2] The Thompson & Lichtner Co., Boston and New York.

Furthermore, as members of the Taylor Society are we not guilty of a sin of omission as long as we close our eyes to the responsibility of perpetuating those features of scientific management that can best and only be handed down from generation to generation in unmistakable terms?

Is it not time that something concrete is done to pool the knowledge, information and experience of all the members, and to so tabulate this data as to make it possible to have in the archives of the Taylor Society the great volume of valuable data that simply needs some organized effort to collect and prepare? Even though a complete set of forms, routines and all of the books on the subject do not make it possible to install a scientific management, such an accumulation would be of considerable value as a medium of reference.

The recommendation that a committee be appointed to handle this matter is certainly one that should be favorably acted on immediately.

The list of standard terms embodied in the paper is undoubtedly the result of much study, and although it may not be adopted in its entirety, undoubtedly offers a basis for such refinement as such a committee might suggest.

Another good-sized task would be the modification of the mnemonic symbol classification,—in the machine classification alone there is ample room for improvement, for the question as to how, when and where to use numerals as part of a machine symbol is one that is still very much unsettled.

Another important feature to be considered is the organization chart. Such titles as Works Manager and Production Superintendent are far from conveying the exact functions of the people to whom they are assigned, and at present are not universally used or recognized by the various schools of management.

I agree absolutely with Mr. Lichtner when he claims that the Maintenance Department Planning Room should be a part of the regular Production Planning Department, even though the actual work is done in a separate part of the factory, for it seems reasonable to assume that the Maintenance Planning Room could use the identical planning boards, time tickets, route sheets, etc., that are used for regular production.

As to the feature of Time and Job Analysis and Task and Bonus there are certainly well defined policies and principles that can be almost universally applied.

Regarding the library on scientific management, this is an important feature and I believe is so universally recognized by all members of the Society that I want to suggest that such action is taken as is necessary to accumulate a copy of all approved books, for filing in the New York office of the Society. I would further suggest that each member of the Society be assessed one dollar per year to defray this expense, for probably almost every member will be only too glad to contribute this amount since it would open the way to preserving those good expressions which are apt to be lost sight of unless a standard list of management articles is compiled and revised and the members are kept advised as to changes or corrections in the list.

Boyd Fisher[1]: Permit me to contribute a cautious word, which I hope will be helpful, in sympathy with the idea of standardizing terminology.

Very little discussion—I won't say debate—is necessary to establish the desirability of having standard terms. It is a proper subject of discussion, however, to consider how we can really secure standard terminology.

I am impressed with the fact that it is a thing that can hardly be done by a committee or by a society in any legislative way. You know how the English language was built up,—by no common agreement, but by gradual accretions and perhaps by certain capstones of literature, such as Chaucer's "Canterbury Tales," King James' version of the Bible, Shakespeare's plays and Noah Webster's spelling book. And I think Noah Webster's spelling book had as large a part as any of these in creating the standard terminology and spelling of the present day. You may not realize that that spelling book had a larger circulation than any book ever printed in English, aside from the Bible. Webster offered that as an individual contribution. No committee evolved or could have approved it. It was the subject of violent debate and vituperation on the part of rival lexicographers. It was adopted in America and favorably received in England over the opposition of all the other text-book writers. Noah Webster shot up his lightning rod, so to speak, and the lightning of popular approval hit upon his little rod. All the labors of the Simplified Spelling Board have been unable to amend it.

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[1] Philadelphia. Recently with Aluminum Castings Co., Detroit.

With regard to any standardization of terminology, it must be ventured, I think, first of all as an individual contribution, as some wise and authoritative person's proposal, which will be in part accepted and in part rejected. Even Noah Webster was unable to secure the adoption of some of his proposed spellings and later had himself to abandon some of his offerings.

I think that Mr. Lichtner, by proposing a set of definitions, has advanced the idea of standard terminology farther and more rapidly than he could by promoting any committee whatever, because it gives us something to shoot at and we have already seen some shots.

With regard to the standardization of some of the mechanisms of scientific management, I fully agree with Mr. Barth that you have to have some common agreement as to what scientific management is. It is useless to try to agree upon terms about a thing until you have got the agreement on the thing. There, again, I think that the agreement is promoted by the efforts of some wise man, some part of whose work is accepted and some part of whose work is rejected. Dr. Taylor has been the greatest standardizer of management, not by promoting agreement, but by going out and doing something. Therefore, the most practical suggestion seems to have been made by Mr. Hathaway, when he suggests that Mr. Barth be set to work on writing some of the standards. It is quite likely that most of what he would write would be accepted. An individual can create, but a committee will do nothing but discuss.

I read the other day of one exception to that statement. A group of Chinese and a group of American scholars have just completed the revised translation of the English Bible into the Chinese mandarin tongue, and, at that, it is the result of twenty-five years of labor and was a matter solely of translation. I think that if they had set out to *write* a Bible they would have gone a good many more years.

Sanford E. Thompson[1]: I want to take exception to the last speaker in saying that a committee would not do anything. I happen to be a member of several other societies, one of them the American Society of Civil Engineers, another the American Society of Mechanical Engineers, and another the American Society of Testing Engineers. All three of these societies have committees which are framing definitions of engineering terms and these definitions are being accepted generally throughout the United States and the world. That is what is being done by committees at the present time. Similar committees also in these societies are establishing standards of various kinds which are being accepted and adopted by municipalities and by our United States Government as well as by private citizens.

It seems to me it is up to us to get busy on this. Not to wait for any fund or to keep this idea stagnant until something else happens. Why shouldn't we get to work the way the members of these other societies are getting to work where men who are as high in standing as our own members meet once in three months or even oftener, and study these things and work them out without paid assistance?

Speaker in the Audience: In the Industrial Management Council's Superintendents' Group of One Hundred this subject of terminology has been up for two years We believe it is a very vital subject. It seems to me that Mr. Lichtner's paper is very opportune. We have been hoping to hear from him.

My belief is that the matter rests something like this: that most of our disagreements are because we do not talk in common terms. If we could get a definition of terms we shall certainly shut off a lot of discussion and I should like very much to endorse Mr. Lichtner's paper. It seems to me that it ought to be followed and everything possible done to bring the plan to a head.

Speaker in the Audience: I have been interested in this subjct of terminology. It seems to me that perhaps our immediate objective is not so much to agree upon the meaning of various terms as it is to set them down, to set down those at least upon which there is agreement. While I see the force of Mr. Fisher's remarks that a committee perhaps cannot be put to work effectively upon creating suitable definitions, a committee could at least be put to work effectively at setting down those terms and their meanings which are generally accepted by the majority of the members of the Society.

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[1] The Thompson and Lichtner Co., Boston and New York.

Mr. Lichtner: The substance of all I have said this evening is the resolve that we perpetuate the work of Dr. Taylor, that we make and keep this institution which bears his name up to date in every respect and in progress with the times, and make it recognized as the final word on industrial and constructive problems. This requires the setting up of standards of practice, especially standards on the following points:

First: We should establish an Industrial Dictionary. This should cover terms in common usage in industry. It must be used with judgment and common sense, and not dogmatically.

Second: We should establish standard forms and methods of routine, such as forms for time tickets and standing orders. These standard forms and methods should be made use of to as large an extent as possible in factories working according to the principles of the Taylor System, but they must at the same time be adapted to fit in with the forms and methods already in use at any factory. In our zeal to use standards, we must not lose sight of the facts that a set of forms never yet made a system, that the methods used in one factory are not applicable in their entirety to any other factory, and that each factory must be dealt with not only according to its physical condition but also according to the human element.

Third: We should establish a typical organization chart. This chart could then be used as a basis for laying out an organization chart which places responsibility on individuals, and which is adapted to the needs of a particular concern.

Fourth: We should establish a reference list of books on the subject of scientific management This list should include all the books consistent with the principles of the Taylor Society.

Fifth: We should establish standards of practice on such items as methods of wage and bonus payments; and amount and relation of base and bonus rates.

Sixth: We should come to some decision as to where the Taylor Society stands with reference to important points in modern industry. There are a great many issues of importance as to which, under our present procedure, there is no way of knowing where the Society stands as a body. Take the eight-hour day, for instance, or the question of profiteering.

Finally; on the basis of these standards concerned with fundamentals, we can undertake with every hope of success the original plan of the Society of accumulating data on time and job analysis. It is by such formulation and setting down of standards that the Taylor Society will make itself recognized, as it should be recognized, as the authority on the art and the science of administration and of management.

FOR my part, I do not think it is enough to content ourselves with instructing the workman. I think we must make him a business associate. To be absolutely sure of a man his interest must be made to coincide with his duty. Up to the present time a productive enterprise has rested on two elements—brains and capital. These two elements have taken labor into their service for hire. I believe now that the moment has come to make labor an associate. I do not believe a business enterprise can be stabilized except where the science which directs it, the money which sustains it and the labor which produces it unite in the division of the profits and in a share of the losses. (Edward Herriot, Mayor of Lyons, France, in *The Annals,* September, 1920.)

CAN INDUSTRIAL DEMOCRACY BE EFFICIENT? THE ROCHESTER PLAN[1]

BY

MEYER JACOBSTEIN[2]

I WANT to tell a very simple story of fact and achievement and let you draw your own conclusions.

Here is the background of my story. In the city of Rochester we have from fifteen to twenty thousand employees in the clothing industry. For twenty-five years we have had organized opposition of employers to organized opposition of labor. The industry has been highly disorganized on its technical side. From a scientific point of view it is still a backward industry.

Our industry employs a mixed population. The racial elements are extremely varied, with the Italian and the Jew predominating. But in spite of the diversity we found in a recent census that two-thirds of all our people were citizens, either native born or naturalized.

About fifteen months ago the clothing manufacturers of Rochester, looking ahead with far-sighted vision, felt that they ought to take the initiative in building up a sane, sensible and scientific industrial relationship in the industry.

The Clothiers' Exchange of Rochester, comprising now some nineteen manufacturers, and in whose plants work something like fifteen thousand people,—these manufacturers with no strike on their hands, with no aggression on their part or aggression by employees, sent for Mr. Sidney Hillman, the president of the Amalgamated Clothing Workers of America, and said to him: "We desire to cooperate with you and the union to the end that we may work out harmonious labor relations of benefit to you and to us." Collective bargaining began, as you see, in a very frank statement of purpose by the employers to the head of the Union in times of industrial peace.

The employers said to Mr. Hillman: "In view of the fact that you do not represent all of the workers, we will deal collectively with those workers in our plants who are members of your union." At that time only about twenty-five per cent of the workers belonged to the Amalgamated. Manifestly it would have been very undemocratic to have said to Mr. Hillman: "We will let you speak for all the workers in the industry." That would have been autocracy of the worst kind. It would have meant that the employers on the one hand, and a labor leader on the other, were arbitrarily superimposing an industrial relations machinery on fifteen thousand to twenty thousand employees. So they said to Mr. Hillman: "We will let you speak authoritatively for those in your own organization."

An arrangement was then entered into between the Amalgamated on the one side and the employers on the other. When I say an "agreement" was made, I don't want you to have in mind some large, voluminous document drawn by lawyers. It is Mr. Hillman's idea that legal talent disturbs rather than makes for cordial relations and industrial peace. He has prided himself on the fact that lawyers have not interfered with the progress of his organizations. A contract was drawn up, not by lawyers, but by men who were in the front line trenches, men who were face to face daily with the labor problems in a practical way. The agreement drawn by laymen is a two-page, typewritten document expressed in the simplest language.

The agreement was based on the fundamental proposition that both parties had certain definite rights and certain definite responsibilities, recognized and respected mutually. At the very outset the union recognizes the employer's right to manage his own business without interference, so long as the interests of the workers are not jeopardized. The rights of management are recognized in the very first paragraph of the agreement which reads as follows: "The union concedes and recognizes the right of the manufacturers to operate their plants on the so-called open-shop principle." Most labor leaders would have refused to recognize the open shop, but Mr. Hillman was wise enough to look at the matter differently. When the employers asked for an open shop his reply was: "I don't care what kind of a shop you have so long as you do not discriminate against union workers getting jobs in that shop and permit the workers in that shop to organize and choose their own representatives." Under this open shop principle, which has existed not merely on paper but has actually operated for thirteen months, we have been free to select such labor as we chose to engage, without regard to union affiliation. In the selection and promotion of labor, fitness for the job has been the sole test.

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[1] A paper presented at a meeting of the Taylor Society held at Rochester, N. Y., May 7, 1920.

[2] Labor Manager, Stein-Bloch Co., Rochester, N. Y.

The agreement recognizes the right of management to introduce changes in the technique of manufacture so long as these changes do not endanger the welfare of the worker. The agreement further recognizes the essential right of the employer to secure continuous production. There have always been too many stoppages in the clothing industry. To secure uninterrupted production it was necessary for the union to abandon its most powerful weapon, the strike. The agreement very definitely outlaws the strike as a weapon of industrial warfare. This does not mean that because the agreement declares stoppages illegal that the Rochester market has been free from stoppages. On the contrary, it was just because we expected walk-outs that machinery was installed to handle stoppages when they occurred. We knew that in the ordinary course of events such stoppages would occur, as indeed they have occurred. But a great deal was gained when the union recognized very clearly that it was essential to outlaw the stoppages as the usual method of procedure in enforcing demands.

In the agreement, therefore, the employers secured from the union recognition of these fundamental rights which belonged to management:

1. The right to hire labor on the open shop principle.

2. The right to carry on production methods consistent with the most progressive scientific principles.

3. The right to continue production.

On the other hand labor, too, has rights, and their rights were very clearly recognized by the employers in the agreement, as follows:

1. The right to a job without discrimination because of union affiliations.

2. The right of workers within any shop to organize and affiliate with an outside organization.

3. The right of workers to act collectively in dealing with the employers.

4. The right of these workers so organized to be represented by spokesmen of their own choosing, the understanding being that these elected representatives need not be workers within the plant.

It was also understood that, in view of the fact that the union gave up the right to strike, the employers surrendered the use of the lock-out as a weapon of industrial warfare.

The agreement, therefore, merely sets forth the basic principles upon which we are cooperating in Rochester. It is our constitution.

The value of the agreement, however, is not what is in the agreement but what is done with it. It too frequently happens in collective bargaining arrangements that an agreement is drawn and signed and tucked away in the safe and never used until an emergency arises. In Rochester we desired an agreement which would function every day in the year and, therefore, we entered into an agreement which provided for the establishment of machinery which would make the agreement a living thing. The mere declaration of democratic principles is not enough. If democracy means anything it has got to work.

Therefore, to make this democracy work we established machinery for the daily administration of those fundamental principles laid down in our agreement. The employers have a strong organization known as the Clothiers' Exchange of Rochester. This manufacturers' organization delegates to a labor committee composed of the heads of the five largest firms, authority to shape its labor policies. These labor policies, in turn, are administered by labor managers representing the eighteen manufacturing concerns comprising the Clothiers' Exchange. It is a very interesting fact that whereas in most industries the employment supervisor, or labor manager, or the industrial relations manager, is regarded with a great deal of suspicion by labor leaders, in the clothing industry the labor organization not only endorsed the establishment of the labor management idea but encouraged it as well. In fact, the labor management idea is part and parcel of the whole cooperative undertaking. The labor managers are called upon to help shape the labor policies in the entire market and to administer these policies in their respective factories. In most of the large plants the labor managers are fortunate in having the services of technical experts, including production managers.

The labor managers meet at frequent intervals in order to secure a reasonable amount of uniformity in the administration of market labor policies. Standardization in employment procedure is secured through cooperative joint action on the part of all the labor managers. The Clothiers' Exchange operates a Central Clearing House which supplies employment and statistical data to all the labor managers.

The workers, on their side, are equally well organized to administer their end of the labor policies. The Amalgamated is an industrial union. The various crafts have their local unions, but the local unions, in turn, are consolidated into a Joint Board, representing all the organized workers in the industry in Rochester. The Joint Board elects a general manager. The general manager has a staff of business agents and, in addition, has the assistance of national organizers who are assigned to Rochester by the national headquarters. The general manager and his staff function for the workers very much as the labor managers function for the employers. Technical price committees, made up of practical workers, meet with the price committees representing the employers. The time is rapidly approaching when the union will probably be forced to use its own time study men on its price committees.

Where the employers and the workers are strongly organized and determined to defend their rights, it is natural that conflicts should occur. In order to overcome the friction that inevitably must arise in the ordinary course of business affairs, we have provided for an Impartial Chairman, who acts as an umpire. This umpire, or industrial judge, is chosen and financed by both sides. His decisions are final and binding on both parties. Whenever a dispute arises between the employees and any firm which cannot be settled through friendly negotiation between the labor manager and the business agent, the case is referred to the industrial court for adjudication. Dr. William R. Leiserson, our present Impartial Chairman, has rendered about one hundred fifty decisions during the first year of the agreement. You may be interested to know that practically all of these decisions were handed down without special reference to the written agreement. The cases were decided, for the most part on their intrinsic merits rather than on the basis of technical phraseology of a legal contract.

Practical experience has shown us that a constitution is in constant need of interpretation. To meet this need, we have created a Labor Adjustment Board, made up of union officials and labor managers. This board meets once a week and is presided over by our Impartial Chairman. The employers' and the workers' representatives meet in joint session for the purpose of interpreting our basic principles. In order to meet the practical problems that arise it is often necessary to enact new legislation consistent, of course, with the original agreement. Frequently, it is necessary to assist the judge in shaping his decisions! As a matter of actual fact, the most important decisions handed down by the Impartial Chairman are crystalized in these sessions of the Labor Adjustment Board. In the usual run of cases there is a meeting of the minds and the Impartial Chairman expresses the understanding over his signature.

The machinery is in action all the time. To a superficial observer the constant functioning of the machinery in the settlement of disputes might be disturbing, as indicating, perhaps, a diseased condition within the industry. To my mind it is a very wholesome state, for it indicates that the instrument is vital and flexible and able to cope with the every-day problems of industry.

A mere listing of the questions that are thrown before the Labor Adjustment Board and the Impartial Chairman is significant. What is a fair piece rate on a given operation? What is a fair production standard for a weekly wage on a given operation? Has there been discrimination against a union worker? Has a worker been discharged arbitrarily and unreasonably by the employer? How shall an unruly worker be disciplined in the shop? How shall an unruly employer be disciplined by the worker? When work is slack shall the employer discharge help or give an equal distribution of work to all? Can the union compel an employer to discipline the violation of the union rule by a disobedient union worker? How shall women be paid on jobs ordinarily held by men? Has the employer a right to introduce a new machine or cause a change in the method of production in an operation? All of these questions and many more have been met satisfactorily by our machinery.

One of the outstanding virtues of the functioning of our machinery is the fact that those who are operating it are in close touch on both sides with the rank and file of the industry. There is practically none of that red tape so evident in a bureaucratic organization.

I have described thus far the basic principles that underlie the agreement and the machinery established for carrying out these basic principles. Is it a success? Is this particular form of collective bargaining actually producing results? I will attack this question from three angles.

First, our democratic plan of cooperation is succeeding to the extent that it is building up a capable, efficient and constructive leadership on both sides; and when you get that you have an element of safety in representative government in industry.

Let me indicate what I mean by that. Fifteen thousand employees elect representatives known as shop chairmen in each plant. Those leaders elected by the rank and file have to make good or they get out. The inefficient are quickly deposed. The workers make effective use of the recall in their organization. They don't have to wait for a four-year election period to remove a man from office. They can recall him at any time. There is a wholesome degree of labor turn-over among leadership in this industry that makes for security and responsibility.

Let me give you some illustrations. About eighteen months ago there was a machine operator earning twenty-five dollars a week sewing in sleeves in a certain factory. That man is today general manager of the union. He is receiving today about fifty dollars a week. He is at least a ten thousand dollar a year man. In eighteen months this worker has developed a remarkable capacity for seeing the labor problem from the employer's point of view without losing his own, the worker's viewpoint. Conservative, and yet progressive, he has the confidence of the workers and the utmost confidence of the employers.

Another leader in our market is a man who came to us with a reputation as a dangerous radical. This man has shown a rare capacity for meeting the daily problems in the industry in a very sensible, practical, constructive fashion. He is a splendid advocate for the workers and defends his position with brilliant oratorical power. Responsibility has sobered his judgment and toned down his methods of attack.

We have another man who has a shrewd, keen analytical mind and fights for his end very doggedly and persistently. He is struggling constantly to hold in check a strong class-conscious feeling in order to be fair to the employer's side. When you get a worker who is capable of doing that, you have a valuable leader in the movement just because he has come up from the ranks, retains the confidence of the workers and is able to see the point of view of the employer sufficiently to be fair to both sides, although always fighting for his constituents.

This leadership works itself out in curious ways. In the very first case we had before the Impartial Chairman, there was a young Italian leader, the most radical in the group, representing the workers. Later he became a business agent and then his troubles began; instead of merely delivering keen, sarcastic tirades he had to put things across for his workers, consistent with the principles laid down in our agreement. He found that somehow or other his own convictions and his own temperament couldn't enable him to represent his people and be fair to the employers. He became unhappy in the situation and felt he would not make good. He therefore resigned. He deposed himself because of his incapacity to make good under the circumstances.

The safety of this leadership arises from the fact that it is coming up from the ranks. This makes for a self-perpetuating leadership within the union, not superimposed from without. Of course there is an educational influence emanating from the national organization, but all the time the leadership is developing from within and from below which makes for safety in the industry.

I want to read a statement which was made by Professor Howard, speaking of the Hart, Schaffner & Marx situation, which I think adequately expresses the Rochester situation. "We have had some experience with misinformed and self-seeking men who secured temporary influence over the people, but somehow they failed to thrive in the atmosphere of our arrangement. The system seems to work out a selection of the fittest candidates and trains them to become efficient leaders and executives, skilled in negotiation and in pleading and cross-examination before the judicial boards; skillful and efficient in organization and in disciplining and leading the people."

But leadership alone is futile. A leader, however competent, must have back of him the force of enlightened public opinion. He must have the citizenship of the industry brought up to a level where it will appreciate the highest standards of leadership. Otherwise we shall get demagogues.

Not only is the democracy of Rochester developing leaders who make for safety, but in the second place, it is developing trained citizens,—trained citizens who are informed, enlightened and disciplined.

The very fact that the workers elect their own representatives makes them interested, watchful and careful. They learn from experience that the actions of their elected representatives affect their daily welfare in a very concrete way. Therefore, the workers are watchfully studying the acts and record of every leader. They insist on being informed in order to select the right leaders. In fact, the safety of our entire arrangement lies in the fact that the rank and file is continuously clamoring for information and knowledge regarding those problems that effect their own welfare. The more enlightened they become, the more they realize the importance of selecting proper leaders to represent them.

I wonder whether you can appreciate the discipline that comes to the worker when he appears before the Impartial Chairman to present and defend his unreasonable demands. He is a member of an organized group now and is cocky. He has the backing of his own group who have come to support him in his request for some extravagant increase in wages for himself and for his group. Before the case has gone very far he discovers that facts count for more than emotion; reason is more persuasive than passion; that individual or group demands must be considered in the light of the requirements of the industry; and when the Impartial Chairman renders the decision, whether it be for him or against him, he and his group leave the courtroom better citizens in the industry.

Let me give you one concrete illustration of how this industrial court is operating to bring law and order into the industry. In the plant I represent, the Stein-Bloch Company, we have been attempting to establish production standards for week workers in the cutting room. It was our desire to pay men on the basis of production, a minimum production standard for a minimum wage and then a sliding scale of wages for varying standards of performance. The workers on their side wanted to establish an arbitrary maximum, that a man shall not earn more than fifty dollars a week. We said that was unfair and unreasonable; and our sixty-five cutters carried their case into court and we had a four-hour argument on the subject. We presented all the facts, with the utmost friendliness on both sides, although we fought as though our lives depended on it. The union had a very able leader. Those cutters were perfectly satisfied that their case had been ably presented, and they were satisfied that any decision which would come from an impartial judge on the basis of the facts presented must be a fair decision.

The decision was handed down recently. The judge said: "No maximum." He graded the men according to production. He agreed with the employers' side of the case in this particular instance. The employees are good sports. They said "All right, if that is what the judge says, it is fair, we will stand by it." And they have.

There is a tremendous amount of educational, disciplinary value that comes from a decision like that, and what is true of the sixty-five cutters in this particular case is true of the fifteen thousand workers who are affected by every other decision that is being made.

One of the most wholesome things in the industry is the manner in which employees are disciplined by their fellow workers for violation of some principle mutually agreed upon by both parties. For instance, a worker will sometimes attempt to secure an advantage for himself, perhaps at the expense of his group, through individual bargaining,—a violation of the rule that calls for collective bargaining. That self-seeking individual is taken to task and duly impressed with the fact that in this industry one is not permitted to get something for one's self at the expense of the larger group of which one is but a part. This develops a social consciousness in the industry. When that idea gets planted in a worker's mind you have made him a more social-minded individual, better equipped to meet the problems beyond the factory walls.

Our cooperative plan, therefore, is developing an enlightened, a trained and a self-disciplined citizenship. An intelligent, self-imposed discipline of the democratic character referred to above will make for a higher form of industrial efficiency in the long run than that type of Prussian discipline which is purely mechanical and superimposed by officials vested with superior authority.

In the third place, any plan of industrial organization, to be permanently successful, must be technically sound. This practical test must be applied to any form of industrial democracy. We feel that our cooperative, democratic movement in Rochester has a factual and not a visionary basis. A capable leadership and a trained citizenship would get us nowhere in our experiment if the employers were prevented from introducing into the industry new machinery, labor saving devices, progressive management methods. If the labor organization stopped the manufacturers from making technical progress the whole system would inevitably collapse. The permanence of the plan will depend ultimately upon this question whether or not the employers are going to continue to be free to apply scientific management at whatever point the industry is prepared for it.

Thus far our arrangement and machinery has had sufficient elasticity in it to enable the manufacturers to be technically progressive. New types of machines have been introduced in the factory; all sorts of labor saving devices have been installed; operations have been sub-divided so as to make for greater economy in production by giving unskilled work to the less skilled operators; production standards have been worked out for many week-work operations.

There is much that is still lacking in our plants. For instance, we have as yet no central production control system. We have no routing and dispatching in our plants. We have not worked out a stores keeping or materials classification system. But these deficiencies are not due to the collective bargaining arrangement but to the state of the industry, which has been backward technically for decades and is only beginning to see the light. Even when the employers had no union to deal with and were free to introduce scientific management methods they failed to do so. It is unfair, therefore, to assume that the lack of technical development in the industry is due to the collective bargaining arrangement which has been in force a little more than a year.

Our cooperative enterprise, however, is laying the groundwork for the introduction of scientific management methods in a very salutary way, because when new methods are introduced today they are done with the willing consent of the workers and not imposed upon them arbitrarily and autocratically. We are preparing the soil which will make it easy for production experts to reap the harvest when the proper time arrives. In a word, we are constantly "selling" the concept of scientific management to the workers not by thrusting it down their throats but by winning their consent by persuasion, reason, and practical demonstration.

The worker, like every other person, is suspicious of change and fears the unknown. We are removing this fear and suspicion by showing him that changes will be made only after a careful examination of the facts, which enables the worker to forecast the effect that these changes might have upon his own welfare. As a result of this procedure, we are developing a spirit of willing cooperation and voluntary allegiance to the scientific management idea which, when it does come into our plants, will be more efficient than it would be if it were introduced mechanically and autocratically by the employers without the workers' consent.

The hard-headed critic, however, still says: "Has your industrial democracy reduced the cost per unit? Has it increased production per man-hour? Has it reduced labor turnover?" The experiment has been operating too short a time to give categorical and thoroughly satisfactory answers to these questions. One thing is certain; that so far as the data are available our records show that the arrangement has stabilized the working force and has reduced labor turnover. This reduction in the labor turnover is especially worth mentioning, in view of the fact that it occurred during a period of the greatest labor shortage in the history of the clothing industry. You will appreciate this all the more if you will recall how labor turnover increased in the munition plants and shipyards during the war period when there was an acute labor shortage.

As to production per man-hour, it is not easy to give an answer on this question because very few plants up to a year ago kept such data as to enable us to make a comparison. Stoppages have been greatly reduced. There has been a wholesome amount of shifting from day work to piece work. Week workers, or day workers, have been induced or forced to report regularly their production records. Standards of output have been set and accepted by the union for week workers where the piece work basis is not satisfactory. I feel sure that in several of the large plants the production per man-hour has been maintained during this first year of experimentation. In the smaller so-called outside contract shops the production per man-hour has not held up so well as in the inside plants. The aggregate production was affected by virtue of a reduction in working hours from forty-eight to forty-four per week on April 1, 1919. However, a number of departments in several plants secured as much production in forty-four hours as in forty-eight hours. In the light of the great falling off of production in many lines of industry, including those industries which do not have collective bargaining, I feel that our record along production lines has not been unsatisfactory.

Bear in mind that our experiment is only one year old. There are many weaknesses in the plan which will have to be eliminated as time goes on. We have been experimenting with political democracy for one hundred thirty years and still we do not feel that we have completely arrived. It is only fair, therefore, to ask that you be patient with our experiment in industrial democracy. It is still in its infancy. With your patience and our faith we may work out a plan of industrial cooperation which may be of value to all industries.[1]

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[1] For discussion of this paper see page 167.

PRODUCTION is the great world problem of today. We cannot escape the problem of production. We must meet it and come as near to a solution as may be possible or we shall suffer.

We shall find our way through by no formula or pattern, but by a constant giving of the best thought of all in a real consecration to the ideal of service.

What American genius is called upon to accomplish today is so to guide the machinery of production as to meet the needs, while providing for labor a just reward and a proper share in the business of determining conditions and policies.

The greatest single achievement for progress possible to this day and this generation is the substitution in industry of the ideal for production for use—for service—and not for profit alone. The profit ideal constricts the creative productivity of both managers and employees.

The trade union movement welcomes every thought and plan, every device and readjustment that will make expended effort more valuable to humanity. It bars the way only when it is sought to make the worker pay the bill for his own increased effectiveness as a producer.

The labor movement cannot and will not sacrifice any of its militancy, because that is the jewel of its being, the heart throb of its existence. But it can and does welcome every helpful effort toward the development of a higher and better and freer manhood and womanhood.

(Excerpts from "Introduction" by Samuel Gompers in *The Annals,* September, 1920.)

TOO late for review in this issue, but not for the notice which it deserves, there comes to the desk of the editor the September issue of *The Annals of the American Academy of Political and Social Science,* entitled "Labor, Management and Production." It is edited by Morris Llewellyn Cooke, Samuel Gompers, President of the American Federation of Labor, and Fred J. Miller, President of the American Society of Mechanical Engineers, and presents "an American industrial program." "This joint work of the 'leaders of the organized workers' and the 'scientists of industry' is an effort to present a comprehensive and fundamental program for American industry. A general agreement has been reached as to the essentials: (1) production in ever increasing measure; and (2) the safe-guarding of human rights against the growing concentration of tool power and the development of industrial freedom through adequate provisions for 'collective bargaining.' Any industrial program on which science and labor can loyally cooperate will be a master contribution to progress. The bases for such a program will be found in the following pages." It is interesting to note that two of the editors and seven of the contributors are members of the Taylor Society. And, as Mr. Gompers says "The spark of inspiration is in many of the pages of this volume."

THE WORKER'S REACTION TO SCIENTIFIC MANAGEMENT[1]

William R. Leiserson[2]

WE ought to be clear as to what we mean by management and I may illustrate the idea that I have of it by something that happened in my own family.

The problem was up to me as daddy to get my little boy to wash his hands before dinner the other day, and naturally while I may tell managers how they ought to run their business, when it comes to managing my own I do not always do as I preach. I told the boy, "You go up and wash your hands." He had some ideas of his own about it, and started to argue, when my wife said: "Lee, you remember that little book that gives a list of the rights of childhood? And you remember there is one right that every child has, the right to be washed before every meal? It is one of your inalienable rights. You have a right to be washed." He promptly got up and went to wash his hands.

If the question of managing that situation was to ascertain my authority as the head of the family and to prove that I can get him to wash whether he likes it or not, then my method was better. But if the purpose of management is to get the results, the hands washed in this case, production of services in your cases, then my wife's is the better method. If we could only get over to managers the idea that the assertion of authority ought to be minimized; that authority is not the important thing, but it is the result for which the industry is organized that we want; if we could get them to forget about their authority, I think they would have less trouble in getting production results from wage earners.

Sometimes I wish that all managers could have the experience that a father had in a courtroom in Wisconsin where he was trying to assert his authority. I think it would teach them this same lesson that I was taught in my own family. The State of Wisconsin had occasion to prosecute a family that didn't send a boy to the continuation school. The employer said he was willing to give the boy time to go, it was the family's fault. The family was brought into court and the father said: "I wanted him to go but mother wouldn't let him." The mother said: "I wanted him to go but father would not let him." The judge asked: "Who is the head of this family?" The father said: "I am." "All right then; you get thirty days."

Management is an art, a method of doing things, a method of getting things done. It is the opposite, in a way, of science, science meaning classified knowledge. The man who is able to gather knowledge and classify it and get the implications of that knowledge, may be the worst man, most inefficient, when it comes to applying that knowledge. I want to make the distinction clear between management, which is an art, and knowledge of things, science. I think it is very important. You have heard of Christian Socialism. Some one has said it is neither socialism nor Christianity; and scientific management is sometimes neither management or science.

The work of getting materials, machinery and human beings all co-operating in such a way as to get the desired results, is the management function; what the economists call the *entrepreneur* function. It requires knowledge not only of the business, but also of human beings. In the past, it was assumed that because a man could raise the money and acquire legal title to a business, therefore he was the most efficient in administering the property and managing the human beings to accomplish the purposes of the industry. Only yesterday I heard a gentleman in Philadelphia maintain that the present method of selecting managers,—the automatic method, by which the people that have the title to the property are the managers or choose the managers,—is the way to get the best managers.

When the scientific study of management was begun, however, it was found that that assumption was a very erroneous one; that what managers we had—our captains of industry, if you please—had overlooked almost universally the application of science, of classified knowledge, to their problems. Not only that, but they used the military method of getting their results from the wage earners in the industry; they used the method of issuing orders which had to be obeyed regardless of whether the people thought they were reasonable or sensible or not.

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[1] A paper presented at a meeting of the Taylor Society held at Rochester, N. Y., May 7, 1920.

[2] Chairman Labor Adjustment Board, Rochester Clothing Industry, Rochester, N. Y.

When you scientific managers came along to bump your idea into the heads of these captains of industry, you know better than I what a job you had to get the idea over to them that they ought to apply science to industry. You did a big job. You showed them what, if they had really been competent, they ought themselves to have known and done, i. e., study their business as a science just the same as before a man becomes a chemist he is supposed to study chemistry.

But when you finally got the idea over to the managers of industry,—that methods of doing work, routing or storing materials, or shovelling coal, or whatever it is, can be done in a scientific manner, by using the knowledge of past performance and properly classifying and analyzing that knowledge,—you then brought industry face to face with a much more serious danger. These managers of industry, who are managers by virtue of the fact that they have legal title to the property, when they were convinced that they had not been scientific and suddenly they got science, they took the attitude: "Now we are sure we are right. And you workmen who say this is no good, you must be wrong. This is science that we offer you, not our own wishes. You must take it and you are unreasonable if you don't." It merely gave the manager who had the idea of the autocratic method of getting results, the idea that he must be right because the orders he is giving are based on science. And that is the problem that faces us today, a most serious problem.

The men in my experience in industry who have had the greatest amount of trouble with their employees, who have had the worst personal relations, have been the type of men who were sure that their policies were based on accurate scientific knowledge. They could prove it on paper by charts and figures and by every mathematical and scientific formula that was necessary. But they didn't know how to manage human beings and how human beings react to certain presentations of a subject. They had to get something over. Let us say they had to shoot a bullet and make an impression on somebody. When that bullet goes into a wooden head it makes one kind of an impression. When that bullet goes into a steel armor-plate head it makes quite a different impression. The same bullet,—but different human beings and they get it differently.

There are all kinds of human beings, and they react to things differently. The manager who is not competent to see that the real problem of management, or the art of management, is primarily the method of putting psychology into practice, the manager who can't and doesn't see that is unfit to be a manager; and is the more dangerous if he has science to back him up.

Let me give you a few illustrations as to how workmen react to management. You must have in your minds many other similar experiences. You have found trouble in getting over new ideas to workmen and you say these workmen are opposed to improved methods and improved machinery. We have had in the clothing industry some trouble when new machines have had to be introduced, say pressing machines. Workmen are used to working with hand irons and when a machine is introduced they think it will take their jobs away and they kick. Employers want to insist on their rights of putting in new machinery, and they say the workmen who are opposed to new machinery are opposed to progress, and it looks as if they are right. But are they?

In Boston a short time ago an employer tried to put into his factory some hand irons. In that city they had been doing pressing with machines for several years, and one manufacturer wanted to go back to using hand irons. The pressers thereupon threatened to go out on strike. They might say: "We are striking because the employer is opposed to improved machinery and wants us to go back to the old and antiquated methods." If the workmen said that, they would be just about as right as employers are when they say that workmen or unions are opposed to the introduction of new machinery. The manager ought to know that every human being, no matter how radical he is, is instinctively afraid of change, suspicious of anything that is new. If you are used to eating prunes and oatmeal for breakfast, nobody that comes along with a new idea of breakfast food can get you to change without trouble. He has to spend millions of dollars to prove to you that grape nuts or corn flakes, or what not, has brain food in it; and then not all of you will change.

Now, then, if the management is really scientific, when it has two such facts before it, workmen opposing machinery and workmen insisting on machinery, the obvious conclusion is that it isn't the machinery, but it is changing methods, changing habits, that they object to. When we have been doing things in a certain way and all of a sudden somebody comes along with a new proposition he is proposing a revolution in our habits. Human nature safeguards itself against revolution by being afraid of change. Prove it to us first. The manager ought to know that a wage earner who appears to be opposing machinery, is opposed to change primarily and not to the machine.

You know, we seem to have an idea in studying things scientifically, that everything in the world is natural and works according to certain natural laws if we can only study them and find them out. We think human beings, however, are not natural. But psychologists have shown us that we can study the actions of human beings and record what they do and classify that knowledge; and we find that they also act in accordance with certain natural laws, natural habits, natural methods of doing things. If we want to get a certain result from people, we must study scientifically, not primarily the thing that we want to get over to them, but the method of getting it over. We must study our people, how they act and react so that we may be able to present the problem properly to them.

Let me illustrate by cases that come before our court. Dr. Jacobstein has told you that in this industry in Rochester, the predominating nationalities are Jews and Italians. Jews and Italians have altogether different psychology and you cannot make them understand the same proposition by putting it to them in the same way.

I note them coming to the court. The Jews don't care a hang about decisions at all. They don't want decisions. When they get stuck in negotiating with the employer they come to the court to get assistance so that they may continue the negotiations and reach an agreement. They want to bargain and adjust the matter. They have a bargaining psychology; years of that kind of tradition back of them. They say: "The price of this is fifty cents," and they think it ought to be that. The employer says: "It is only forty cents." They know full well the workers are not lying; they know that they have put the price higher with the expectation of bargaining. That isn't lying. That is business.

The Italians have quite a different psychology. They haven't had so many years of business experience. Theirs is not a business psychology. They haven't any bargaining instincts. Their psychology is rather, as it appears in court, that of a sense of honor, handed down from days of chivalry. If an Italian says this is worth fifty cents, even though he may have made a slip and it really isn't worth fifty cents, he doesn't look upon the statement as a bargaining bid. When, therefore, the other fellow says it is worth only forty cents he thinks the other man is calling him a liar. And he does not want to negotiate. He comes to the judge and asks: "Am I right or am I wrong?" And he will stand for any decision that an outsider will give. He wants the outsider to settle this affair of honor between him and the other man. He doesn't want the other man to tell him he is wrong, and he doesn't care particularly about bargaining the matter. He wants to be told whether he is right or wrong: "Am I a liar or am I not a liar when I say this is worth fifty cents?"

It is quite obvious that if you try to deal with both of those sets of people in the same way, no matter what it is that you want to get over, you are going to get different kinds of results, and the manager who doesn't understand the different psychologies of the people he is working with is not going to get his results over.

The union people, those who survive in the union membership as leaders, or officers of the union, are the best people to study when it comes to finding out the real science of management; because in order to survive as leaders they have to make their own working people, who are their employers, do the things that the officials see they have to do under the agreement, and yet they must convince the working people from their point of view.

I will tell you an experience of the manager of the union here, how he managed a very radical shop chairman in order to get a certain result from him. It illustrates in a homely way the method of really managing,—with an understanding of psychology. If you told this union man that he was applying psychology he would say you were crazy, but that is what he is doing.

There was a dispute between a certain section of button sewers and the firm, and the decision was made. A half dozen girls didn't want to work according to the decision, and this radical shop chairman and some others had encouraged them, and said: "Go out, the rest of us will support you," or something to that effect. The firm did very promptly what it should have done when the girls refused to do the work,—fired them. After the girls were out two or three days they saw that the men who had encouraged them didn't come across. There wasn't any stoppage or strike to support them at all. The union wouldn't stand for it. So the girls were left out in the cold and the shop chairman felt a little guilty that he had in some way encouraged them and then he didn't keep his word. He and several others asked that the girls be taken back; the firm refused. Then there grew up quite a little sentiment among the people in the shop that the girls hadn't had a square deal; that if they had been left alone they never would have refused to do the work. They had been encouraged by somebody to refuse to do the work, and had lost their jobs while the people who encouraged them hadn't supported them. Finally the shop chairman and a committee of the emloyees went to the employer and said: "Take them back," and in a way begged them to do so. Still the employer didn't take them back because they had refused to abide by a decision. Their action was violation of the law. The sentiment grew stronger. The shop chairman went to the manager of the union and said: "You do something to try to get them back. Our people are kicking about it." The manager of the union had all of this sentiment against the firm's stand, which was a right stand, and he knew that any arbitrator would back up the firm. He had that all against him and he knew that no leader can oppose the sentiment of the rank and file very long.

What did he do? Did he tell the shop chairman: "You are wrong, you have violated the law?" No; he said to this radical shop chairman, whom he knew: "You are a great revolutionist! You tell the boss, 'If you don't do so and so, we are going to do this and that and we will walk out.' Then when he calls your bluff you get down on your knees and beg him to take your people back. Why don't you stand up like a man and even though you want them to go back, why don't you say: 'Well, if you don't want us we don't want you. We don't want to go back at all.'" The thing was settled by appealing to that fellow's own revolutionary ideas; his pride that he didn't have to beg the boss to take him back on the job. That helped to allay all of that spirit of opposition.

So when you approach a class of people you have got to find out their "apperceptive mass," as the psychologists calls it. What is the mass of experience in the back of their heads that interprets every word that strikes them? Each person, each group of persons, has a different mass of experience of this kind, and when he hears something, it creates a somewhat different impression from what others get, and you must find out what these different impressions are when you want to get any particular thing over to different people.

One of the most important things that people are afraid of, psychologists will tell you, is the unknown, the fear of change, anything that is unknown. It has been unknown in many clothing factories to count the work that people do, and when you suddenly come and tell people to count the work, they get scared. It is a revolution. No matter how revolutionary they are, they are afraid of change. We had one firm tell the workers: "We want you to count the work." Under our agreement the firm had a right to have its work counted and recorded. But what is the good of a right if the people are afraid of it, as some people may be afraid of lightning or thunder or things of that kind, things they don't know about.

We had a great deal of trouble in the shop of this firm to get the people to count their work. The funny thing about it was when the union official told them: "They have a right to count the work, you cannot object to it. What are you afraid of?" They said: "We don't really object to the counting but what we are afraid of is what that fellow has in mind when he wants us to count the work. We never did it before and he must have something else up his sleeve or else he would never ask us to count the work."

In another shop of the same firm a real revolution was inaugurated by the employer; a system of scientific management was introduced in the shop. It was a complete change from what they had done before, but it wasn't sprung on the workers. It was talked about for two or three months in advance and they learned to know that it was coming and what it was likely to do and they talked back and forth; and this really important revolution in their methods of doing things came about with some grumbling, to be sure, but was accepted without any great amount of trouble. On the other hand, the unimportant, minor matter of having the work counted, caused a great rumpus.

What does it show? It shows that there wasn't enough knowledge in the minds of the people as to the purpose of this thing; that they have to be consulted and have the thing explained to them if they are to accept it without protest.

Let me relate one other incident outside the clothing industry which will interest you. Many of you may be in metal trades plants where you are gathering scientific data and fixing prices, and you think that a price can be fixed by time study. A workman has quite a different idea of it, and unless you consider that, you will have scientific management in the *mind* of the management but you won't have scientific management in the *plant*. I don't call any management scientific until all the people in it—those who work in it as well as those who manage—work willingly and understandingly in regard to this scientific method of doing things.

I was at one time running an employment office for the State of Wisconsin. I had a sign up on the board: "Machinist—27½ cents per hour." The rate for skilled machinists was then 42½ cents per hour. A first class machinist out of work was hanging around the office and I never told him about the job, never offered it to him. It had been on the board two or three days when he came to me and said: "Why don't you send me out to that job?" I said: "You don't want the 27½-cent job, you can earn 42½ cents or 45 cents." He said: "I know, but I have been out of work so long I need a job. I will take that job. I will give them 27½ cents' worth of work!"

The workman has constantly in his mind what is a fair and honest day's work, and you can't set wages by time study or by any other scientific method that does not take into consideration the worker's judgment of fairness in this thing. You have got to measure that. That is one of the elements, and if you leave that out you haven't a proper wage; because no matter how scientifically you measure it, he is going to give the day's work that he conceives fair and honest and he is no more a crook than you managers are. He has his idea of justice and fair dealing in a day's work, and you managers have your idea of justice. A really scientific method of fixing wages is one that will put together the management's idea of a fair rate and the workman's idea of a fair rate, and I don't see any other method of doing that except through collective bargaining.

The employer who is supposed to have intelligence, ability, all the knowledge of the market,—he never trusts to his own ability; he hires experts. He hires some one of you. He hires these experts to fix wages for him because he feels he doesn't know enough about it. Then he denies to the employees the right to hire the same sort of people to help them fix rates for their side. There is no way under individual bargaining, or under any one of these shop committee plans which insist that the wage earners must be represented only by people from within the plant (which means by the same kind of uninformed people as they are),—there is no way for workmen to bring in an expert from the outside to help them fix wages. There is no scientific management expert, if you please, to stand up to the boss and say: "This thing is worth so much from our scientific point of view." The only way working people can be afforded equal opportunities with employers in hiring expert scientific services for their side is for them to join an organization, chip in and pay dues, and hire a union official who is their labor expert to deal with the employers' labor expert. There can be no scientific rate fixing unless both sides are represented and both points of view are equally considered in measuring what is a fair day's work for a particular operation. That can only come through collective bargaining of some kind.

These examples I have given you merely illustrate that psychologically you cannot make a set of rules and say: "These are the things which have to be done." The only rule you can make when you want to take into consideration the psychological side of management, the managing of human beings as distinguished from the management of materials or machinery or things of that kind, is that workmen have certain attitudes. These attitudes change with conditions. The attitudes must be studied and the conditions which cause them to change.

Let me illustrate that. You find generally that union people are opposed to piece work, and most scientific managers thereupon conclude that organized labor is opposed to piece work because they have no interest in the industry, because they want to hold back production. And they conclude that the only method of stimulating production, of scientifically managing things, is by a piece work system and by carefully measuring the time per piece. It has been our experience here, and it has been my experience in other industries, that unions are not uniformly opposed to piece work, nor is piece work the only method of getting production in quantity and quality. It can be done in various ways. We find, for example, as long as the union is weak and the employer can control the piece work rate that when he sees a fellow working fast, he considers that normal and fixes a low rate accordingly. He has in his mind an idea of how much the workman ought to earn a week and fixes the piece rate accordingly. Under these circumstances workmen are always opposed to piece work, not because they are opposed to the principle but because they are opposed to the method of establishing it.

I don't care how scientifically you measure when you fix a piece rate. Suppose you do set a proper rate (sometimes you do hit it right), and the man does earn thirty or forty dollars per week as you expected on the rate you fixed? Give him time, a year or two of experience at that same operation, and he will increase his production fifty per cent, sometimes one hundred per cent. I have seen it done again and again. Then somehow the employer thinks there is something the matter with that rate. The worker is earning too much! And if the employer doesn't change the rate directly he will make some change in the operation so that a change in the rate can be made indirectly.

It is their experience that has opposed wage earners to piece work. But when they get a strong union it is different. I heard a strong union man in a union industry put the argument this way: "We have got to stand for piece work. Week work is a relic of slavery, of the time when we sold ourselves, our time; we belonged to the employers completely. When you see the boss around under the week work system you get scared. He owns you and every bit of your time. But when you have piece work you are not selling yourself; you are selling him the result of your labor and you are a free man and that is what unionism stands for." If employees could be sure of the strength of their organization to protect their side of the labor bargain, you would find that they do not object to piece work. Assure them the protection of a union and they may prefer it, as this man explained.

Another example: We had some discussion in this market as to the wages a tailor should be paid. Should he be paid according to what he can do or according to what he actually does? We have seen men in this industry who are all-round tailors, full fledged mechanics but who are put at minor operations. The tendency of the wage earners at first was to argue: "This man is an all-round mechanic, he spent seven years learning the trade, therefore he ought to be paid for that." The employer argued: "If you took Caruso and had him dig diches you couldn't pay him for his voice, you would have to pay him for the work he was doing."

In this market we have decided,—rather I have decided in interpreting the agreement—that a man is entitled to be paid for the work that he does and not that which he can do. There was some kicking about it, but in talking with union people I find them getting a new attitude on this question, a new point of view, resulting from the new conditions their union has brought about. As long as they had nothing to say in dividing the product of industry, all they could get out of the employer appeared just to them. If any tailor could get paid for his voice, it was perfectly right to get it out of the employer. But when you have an organization of 13,000 people who have a say in dividing the total wage bill, then they get a little bit of the point of view of the management—then they have responsibility and they keep watch of each other. When the pressers say: "We want $60 a week," the tailors stand up and say: "Why should you get $60, are you the aristocrats of the industry?" They get the idea that because they have something to do with the distribution of the product of industry that the distribution should be according to the contribution of each individual, and not all that each one may get by hook or crook from the employer.

You never get that reaction from wage earners as long as they have nothing to do with settling the division of the entire wage bill. But when you have it as here, where they have a fifty per cent "say" with the employers as to what the wage bill shall be, then they get a little of the responsibility of the management, as to how the wage bill should be distributed. Then when one fellow wants to raise himself at the expense of the others, because in the old country he spent seven years learning something and he wants to get more money, they say: "You are entitled only to what your share of the work contributes to this pile that is being divided and you are no better than the rest of us."

I am telling you this to illustrate that it isn't the things the working people stand for or object to at any time that matters; it is rather that they have certain attitudes of mind which come from certain situations they happen to be in, and when those situations are changed their policies and beliefs also change.

In conclusion I want to say that it is important for management to understand that this change in attitude is constantly taking place either because of the union, because of shortage of labor, because of rising prices, or because of any number of things that happen. And the manager who doesn't see these things changing and thinks that he can follow one policy in managing human beings is bound to have trouble with his employees. He can't manage scientifically.

Doesn't it seem remarkable to you that if we want a man to run the boiler to heat a building like this one we are in, he has to pass an examination; he has to be licensed, so that we may know that he is a responsible and competent person? But if I can get a million dollars, by luck or inheritance or any other way, I can take 10,000 people into a plant and manage them and I don't have to have a license or pass an examination. I may spoil the lives of these people; I may pervert their whole attitude toward life by the way I handle them in the factory, and yet I am under no responsibility to the public to show that I am competent. If you go in to look over a set of books, you have to be a certified accountant. We license even plumbers. But the idea of having competent managers who would be examined and licensed has never entered our minds because we have assumed that if a man inherits a million dollars, therefore he knows how to handle 10,000 people.

It doesn't mean that because people have become managers by accident that naturally they don't know how to manage. It may happen that they do know how to manage. Many of them do. There is also a certain amount of survival of the fittest; and many managers now realize their great responsibilities, and want to turn over a new leaf. They see that the old method of driving employees can't endure. But it is important that this turn of a new leaf shall be real and permanent; not just a pretense to turn back to the old leaf again. And may I tell a story, in conclusion, to illustrate this?

A small clothing manufacturer in this city said to me not long ago: "I have been in business thirty years. In the old days my people were afraid of me. No more of that now. When I came into the plant and they heard my footstep, they would be scared. I didn't stand for any monkey business in the plant. Now it is all changed. Would you believe it? When I go over to ask them to do a reasonable thing that they are supposed to do for the money I am paying them, my heart ticks inside like a clock."

Then he went on: "It can't be like in the old days any more. I never said good morning to my people. Nothing like that. Now I say: 'Good morning! How do you do?' When I want them to do something, I say 'please' and I smile. Inside of me when I smile it is green like your tie, but I smile just the same."

That is what I mean. When you can really smile in handling these people under present-day conditions, then you know how to manage human beings as they have to be managed in modern times when they are free men and can quit the job, just as you could hire them in the old days. But too many employers have changed only on the outside; they smile and say "please", but inside it is still green.[1]

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[1] For discussion of this paper see the next article.

MEETINGS of the Taylor Society for the year 1920-1921 have been arranged as follows:

December 2, 3 and 4, 1920: Annual meeting in New York.

February 24, 25, 26, 1921: Winter meeting at Springfield, Mass., under the auspices of the Springfield Chamber of Commerce.

May, 1921 (exact dates not determined): Spring meeting at Cleveland, Ohio.

Make a proper tickler memorandum of these engagements.

DISCUSSION OF THE PRECEDING PAPERS

OF MEYER JACOBSTEIN AND WILLIAM R. LEISERSON

FOLLOWING the addresses of Dr. Jacobstein and Dr. Leiserson, the discussion, covering both addresses, proceeded as follows:

WM. F. JOHNSON:[1] If my voice should appear to be a little stronger than that of my friend, Dr. Leiserson, the "Impossible Chairman," as he is sometimes called, do not believe that it is because I am not scared; I think anyone might well be scared, especially when he might be obliged to say some things that would not be entirely in harmony with what has been offered. In fact, in the time allotted, I can hardly more than start a discussion, but I should like to present at this time something that might possibly start our thinking along other channels.

We may be inclined to feel that at last we have found a solution to the great human problem in industry, but while credit should be given to those men who have worked out this so-called Rochester Plan, I am not prepared to say that the plan as outlined here this morning would in any way fit all industries. Still we must admit that there is much good in it, for as the good book says, "By their fruits ye shall know them." Perhaps the fruit of this plan has been the elimination of the continuous labor strikes that the clothing industry has always been heir to; for no other industry, in this city at least, has had more labor troubles than the clothing. Even when our friend Dr. Jacobstein was steering the ship of state at the Michael Stern & Co., labor disputes were not altogether unknown.

I am wondering, however, if the clothing manufacturers are not placing too much confidence in their system of labor adjustments and that some day they may awaken to the fact that what has more than anything else prevented strikes and labor troubles has been that the demands of the workers were so liberally met. The manufacturers themselves, being so thoroughly organized, could easily pass on to the long-suffering public whatever increases might be granted.

I am anxious to see what may develop in the next few months, now that we mortals who are obliged to wear clothes, even in warm weather, have come to the realization that we must have a little money left, after buying clothes, to feed the inner man. Surely when our judges and congressmen and even members of parliament over the sea, appear in overalls, we much recognize the fact that there is a general expression of protest against the everlasting mounting prices of wearing apparel. It gives one courage to believe that perhaps there is some sanity left in the human race.

Of course, our clothing friends will say that the high price of clothing is due mostly to the cost of material and that the labor cost makes only a slight difference in the cost of a suit to you or to me. It is quite certain, however, that the public will not stand further increases in the price of clothing, which will mean that the manufacturers will not be able to be so liberal in their arrangements with the unions, and then how is this machinery going to satisfy the worker's desire for more money? Is the union going to say to the manager: "If you can't pay us more money we will run our own establishment," as the papers claim the cloak workers of New York and other industrial centers have already threatened. The following clipping from a paper of May 4th is indeed pertinent at this time:

> *Cloak Workers Would Cut Costs by Abolishing Bosses*
>
> Chicago, May 4. The establishment of cooperative cloak and suit factories in New York and other industrial centers, and the creation of federal and international needle trade alliances, were recommended to the members of the International Ladies' Garment Workers by the general executive board at the opening session of the convention.
>
> Benjamin Schlessinger of New York, international president of the union, presided at the convention, in which 300 delegates, 150 of them from New York City, represent a membership of 150,000, an increase of 40 per cent since 1917.
>
> The question of cooperative factories, which are recommended as offering a chance to the union to retain the profits of the industry, and at the same time afford cheaper merchandise to the public, was brought up in the report of the general board, which, however, does not expect to put the scheme into immediate operation. Stores in which the products of the cooperative factories may be sold are also part of the plan.
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> The executive board maintains that persons with small

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[1] Taylor Instrument Co., Rochester, N. Y.

> means make large successes in the needle trades, that the union has the labor power and the necessary funds, and that by going into business on a large scale, the union will satisfy labor's demand for a voice in the management of industry.
>
> *Clothing Union to Pass on Bank Plan*
>
> Boston, May 7. Preliminary to the opening of the convention of the Amalgamated Clothing Workers of America here on Monday, the general executive board is in daily session at the Hotel Bellevue, formulating its recommendations to be acted on by the delegates.
>
> That these recommendations will include a plan for the establishment of a cooperative bank for clothing workers is practically a foregone conclusion. This and other cooperative enterprises, the nature of which is not disclosed, will be laid before the convention for action.

However, I am diverging from the discussion of the papers presented this morning, but take the liberty of doing so simply to illustrate the possible danger, as I see it, to the industries that seem so completely to have turned over the management of their business to labor managers and union leaders.

I question the advisability of such an elaborate industrial relations organization as outlined here this morning,—especially in organizations where we are not contending with absentee ownership—for surely the owner of the business giving his own time and attention to the details of management, should be recognized as having something to say about his own organization. I cannot conceive of an owner of a business being dictated to as to whom he shall or shall not employ. Imagine, if you will, an employee refusing to do certain work assigned to him, and upon refusing, being given one week's notice of dismissal by his foreman and then at a hearing of this High Court, the worker is ordered back to his old job until investigation can be made. I do not wish to infer that I believe in summary dismissal by a foreman, but I do believe that machinery within an organization can be established to very quickly and justly handle such cases as these without the necessity of submitting to an outside tribunal of justice

We will admit that it is quite advisable in large organizations, especially where there is absentee ownership, to have machinery whereby the employee and the employer may be brought closer together in their business relations, but many of us are connected with the smaller industries which have grown from a very small beginning when the owner has at one time worked at the bench with his employees. In an organization of this kind, the personal touch has not been lost, providing, of course, the management has been alive to its opportunity; and in such an organization as this, the elaborate machinery of shop committees is not needed, for the individual worker feels free at all times to discuss his problems with the management (now generally through the employment manager). I can hear some say, "They will not do this," and to them I say, "My experience shows that they will."

A square deal from the management is what the worker wants. He cares not whether it be acquired through an elaborate system of industrial democracy or scientific management or plain common sense management,—which, by the way, can be combined with scientific management, —just so long as he receives a square deal. There surely is no cure-all for the present unrest through any system of industrial democracy, but only through conscientious effort of the management to be square with the worker.

I was amused at Dr. Leiserson's description of the Jewish worker who described so vividly his impression of scientific management and perhaps there are those in this audience who can recall some individual, of course not himself, but someone who has gone about setting piece rates or introducing a scientific process in some such crude way. We must not forget that after all, the worker is only human—that he is just the same flesh and blood as the rest of us and that all he wants is an opportunity to do his best.

So let us consider not only the worker's reaction to scientific mangement, but let us consider his reaction to the common sense management, the management of the square deal. Give him this square deal and the reaction will be all that we may hope for, and you gentlemen who are so closely connected with the mechanical end of industry and whose job it is to get out production and show profit, can do more than anyone else to help create the conditions in industry that we all hope for.

LEROY E. SNYDER[1]: It requires a violent effort of will to resist the temptation to reply to Mr. Johnson's comments on the two papers, but I will confine myself to the real job of discussing the two papers. I shall leave the rejoinders to Dr. Jacobstein and Dr. Leiserson.

When I went to work as Labor Manager for

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[1] Labor Manager Rosenberg Bros., Rochester, N. Y.

Fashion Park a year ago the first of last month, I supposed our principal job was to find the best methods in which to apply (with justice, of course) the principles of sound economics to the solution of the problems of management and labor in the clothing industry. But I hadn't been in the work very long until I began to realize that the most important factor of all was the question of human relationships. I found the principal question to be one of psychology, rather than pure economics or social science.

I am deeply interested in scientific management because I believe the finest thing in the world is the scientific spirit. I do not see how civilization can endure and how man can make progress without the help of the scientific spirit. But those of you who have read the recent literature on the subject of social psychology realize, as I have begun to realize very strongly, that psychology is just as valid and just as legitimate a science as is the science of biology or of chemistry or of physics. It is only recently that the psychologist has been admitted to a front seat in the row of scientific men, men whose word can be accepted as a part of that which we need for our guidance in solving the problems of life. With me it has come down to this: that the most important thing in helping to work out the difficult problems of industry is that we recognize the necessity of understanding the psychology of the people with whom we deal. Of course, we cannot do that coldly, dispassionately, as the scientist may in his laboratory; we have to do it with a sense of justice and of fairness which is very keen and very real.

That, I believe, is the thing Dr. Leiserson has given you. I believe, if you wish to carry away with you the spirit of the clothing industry, the thing that is at the heart of our effort in Rochester today, you must take this with you: First, let us try to understand the human problem, let us try to understand the social values that are there. But I place second, in an only slightly subordinate position, the fact that we are quite as genuinely interested in production, in making our industry function effectively for the community, as any body of men could possibly be in any industry. We put the other thing first because we believe it has been so long neglected that a little over-emphasis at the present time will not do anybody any harm.

Dr. Jacobstein referred to the quite informal nature of the agreement or contract that the clothing manufacturers have with the Amalgamated Clothing Workers. I find in the minds of the workers a decided antagonism to legalism, to formalism. They are more interested in equity than they are in law, and I am entirely in sympathy with them in that point of view. This was excellently illustrated to me a few days ago when I was in court, in this suit of Michael Stern and Company against the Amalgamated Clothing Workers. It is unnecessary to go into details; and they wouldn't be particularly interesting if I did, but the defendant was seeking to introduce certain types of evidence to which the plaintiff was making strenuous objection and a witness was on the stand who was trying to say things that the counsel for the plaintiff didn't wish him to say. The plaintiff's attorney objected often and vigorously. I was seated in the last row of chairs and just behind me were standing some clothing workers. One man said: "They ought not to have any lawyers in these things. The judge just ought to let both sides get up and talk. He ought to hear all they have got to say."

According to the rules of evidence that remark was decidedly beside the point, but if they were seeking equity in the case I am inclined to think the workman was right. What harm can come from telling all that you know about a situation on either side? That is what we have tried to do in the clothing industry in Rochester during the last year. No doubt a lot of our discussions are "irrelevant;" I am sure entirely so. But that doesn't do any particular harm, and I believe there is a growing relevancy in the discussion, because we are trying to show that everything must have a point, that things must get somewhere. We are trying to work out the thing by giving the present psychology of the worker free play in discussion, while aiding to direct it into proper constructive channels.

Time studies have been referred to here. Last summer our company was, I believe, one of the first in the market to introduce time studies. We were in considerable doubt as to how they might be received. The first time we tried time study was in a contract shop. There was a controversy over prices to be paid for certain pockets, and I suggested that our time study man, who had just come to town a few days before and had not yet done any work in out shops, should come over to this contract shop and make studies. Much to my surprise, the suggestion was accepted without demur, and the studies were made and subsequently used in figuring prices.

Then we went into our cutting room. You probably know that is in some respects the most important room in a clothing factory. I talked first with the shop chairman. I said: "We want to make some time studies. It doesn't do away with your power of criticism when we present the results of the time studies, but we want to feel sure in our own minds that when we are talking about piece rates we are not just guessing. In the old days both sides guessed. Both sides fought it out as a matter of bargain and trade, and you couldn't be sure in any case, no matter what the result was, whether it was right or wrong. We want to give ourselves a valid basis of judgment."

The shop chairman consulted the men and the time studies were started in the cutting room on one worker. Then we wished to get studies on another worker for work of a different sort, and the shop chairmen then told me there was some objection in the room, especially on the part of a man who was then president of the cutters' local.

I called him in and had a long talk with him. I explained the situation as I did to the shop chairman in the first instance. He assented and the studies went on.

Since that time we have used time studies continuously. I believe the reason we can use them is because the union feels they don't have to take anything we hand them just as we give it to them. They have the right to question the validity of our payroll data, to question our interpretation of time studies in the same manner that they have the right to question our interpretation of the pay-roll data, or of production records; just as the workers' representatives may bring up questions of over-time, questions of flow of work, and all that sort of thing in considering pay-roll and production records, so they have the right to question the interpretation of the time studies in discussing new prices. I believe that is the thing that has made them accept time studies. I believe they will not object to them unless we make them feel that in some way we are using them or attempting to use them to their advantage.

There is one more word I should like to say about the general situation. I believe it to be a dangerous thing for society when in any industry one side or the other has complete control of the situation. I am perfectly frank to say that I believe it would be much more dangerous for society as a whole if labor had the unquestioned control at this juncture of our industrial development than if capital had the sole control, because after all what the world needs is to live. The world needs more to live than to live well at any given time. We first need production. We need to get goods made. We need to carry on our industrial organization effectively. If I had to choose—and I surely don't wish to choose—between dominant power on one side or on the other, I should say that less harm would come to society at any given time—I don't say in the long run—from dominant power on the part of the employer. But I think the best results are going to come from a state of unstable equilibrium.

Both sides should be so organized that neither side can control the situation. You don't want organized power opposed to unorganized weakness on one side or the other. We in the Rochester clothing industry are trying to build up a situation in which each side may have an organization that can sit down and discuss matters with the other, with the same kind of power back of it on every question that arises. The inevitable result of that situation, especially after war has been tried, is peaceful discussion, real cooperation. That is the status to which we have come today.

My remarks have been wandering and discursive, for I have tried to give you more than anything else, the spirit of our attitude toward this whole situation, rather than any scientific analysis of it. I leave that to you.

P. J. VAN GEYT[1]: There are two or three points that I should like to bring to your attention in regard to the experiment which has been going on in our industry. I shall try to bring them to you from the standpoint of the question—Does the plan work? You men are interested in that primarily. In the two or three points I am going to raise I shall try to illustrate to you whether the project is working or not.

Sometime ago I heard an expert recite what he called an industrial paradox. He stated that it was very curious that, in the study of industry from its beginning, in good times when we wanted production we didn't get it, and in poor times when we realized it necessary for everybody to lay low on production, because there was no market for goods, people speeded up. Then he went on to say why this was so. He said it rested entirely with the working man. In good times the working man did not care. He didn't have anything to worry about because there were three jobs for every two men. If you did not like the way he wore his hat when he came into the place he said: "All right, I will go," and he went across the street and got a job there. He just simply did as he wished. Whereas, in the other situation, when it was desired he slow up—when you could not sell goods— he speeded up, for he was fighting to maintain his job.

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[1] Labor Manager, Levy Bros. Clothing Co., Rochester, N. Y.

So, under the situation of the present kind, when everybody is needing production and when the working men under those conditions retard production, an industry which can maintain the production that has been going on when times were not so well, to my mind is succeeding. A condition such as this we believe exists in our present situation. We feel that production has at least been maintained. Some of us believe that it has gone a bit forward; but to speak conservatively, it has at least been maintained.

Just by way of illustration; before we entered into this arrangement, there was approximately thirty-five per cent piece work in this market. I think that at the present time the situation has been reversed so that there is more piece work than week work, there being about fifty-five per cent of piece work. All of us know that piece work means greater production.

Secondly, we have had several instances, even of large groups of workers, where certain arrangements have been made for increased production. I need only recite one which happened in our wage agreement of last August. There is a certain group of workers who represent approximately ten per cent of the actual manufacturing of the garment outside of the cutting rooms. They thought they should receive a wage increase larger than that which the general group was receiving. They were told that there was only one basis upon which they could receive such an additional increase and that was on the basis of increased production. Finally, after the matter was discussed, a ten per cent increase in production resulted. This arrangement applied to approximately ten per cent of the workers. Spreading this over the entire industry, we had here at least a one per cent increase in production. This illustration, together with the piece work system having increased, to my mind indicates the fact that we have progressed as far as production is concerned.

Then there is another matter in which, to my mind, this industry has progressed. Mr. Noyes outlined to you yesterday some of the projects which were being carried on in this city to advance the general industrial situation. He pointed out that there were instances in other cities where certain industries or certain plants in certain industries had progressed much farther than we had. However, he further pointed out that taking an industry as a whole, or taking the industries of the city as a whole, a great progress had been made over what had existed some ten or fifteen years ago, and that the sum total of progress which had been made was much greater, comparatively speaking, than isolated cases in various individual plants or industries throughout the country.

In like manner, with respect to the clothing industry; when looking at it from the standpoint of the individual plant not very much progress has been made; but while as individuals we have hardly scratched the surface, we have, I believe, advanced the general situation very much.

Under our present arrangement, where the worker has a voice in criticizing methods which are not what they ought to be, he very quickly has an opportunity to show up the faults of management. Continually I have found in my association with fifteen clothing plants during the past year, superintendents, production managers, labor managers and owners getting up on their toes to be just one step ahead of the worker. Previously, such a condition did not exist. Anything that had gone before was all right. We had been doing a thing in a certain way before and it worked,—why should we do anything different now? Our industry has been very greatly tied up with traditions.

We now see a very noticeable breaking away from such a viewpoint. We are being stimulated by the workers to get on our toes, to find out better ways of doing things. I am sure that we never could have reached this point of development in any other way that I can think of other than through the manner in which we are doing it. Scientific management as expressed in the Taylor system or any other system might have taken any one of our individual plants and carried it much farther along than we have gone. Yet I doubt whether the Taylor system of management or any other form of scientific management would be even thought of in the clothing industry generally today, if it had not been for the stimulus which has been brought about during the past year. The clothing industry has moved very, very slowly up until now. It is just on the breaking point of issuing forth. I attribute its awakening greatly to the stimulus which has come from the workers' side. Of course, in time it might have arrived had the workers not been organized, but I think the arrival would have come very slowly. Therefore, if this present arrangement under which we are operating had not done anything more than this, to my mind, it has been entirely worth while.

Dr. Leiserson has touched with emphasis upon the factor of human psychology in industry. I have been interested during the past two days in listening to some of the addresses and particularly in noticing the two charts of organization which have been put forth. I noticed that on both these charts very, very little space was given to handling of the human element in industry. There were three things considered,—machinery, labor, tools,—and they all seemed to be put on the same plane. I think that some of us who have been interested in the scientific end of production have simply forgotten a little bit the fact that human beings do not act like machines and that they do not act like tools. Machines are more or less fixed in their action or reaction. You build a machine to do a certain thing and you know that under certain given conditions it is pretty certain to do just exactly what you wish it to do. The same thing applies to tools. When you go into the third phase of production, that of labor, you find an entirely different situation. Some of us have been inclined to classify the three in the same way and it is there where we have made some of our mistakes. Labor, as represented by the human element, is very, very pliable, and uncertain in its reaction. No one knows what is going to happen in the immediate present as compared with what happened before. Dr. Leiserson's illustration of the same sort of bullets entering the wooden head and the steel head illustrates that far better than I could. You can readily go into your own experience and find this to be true all the time. I think I know something about driving an automobile. I continually drive in a certain way and therefore have formed certain habits. I realize perfectly well that if I come to a steep hill, one of the best things I can do is to brake on the motor, yet I never think of this until I get to the bottom of the hill, then I figuratively kick myself off the seat because I hadn't thought a moment previously of the best way of doing it. I rely upon two brakes where I might have relied upon a third agency. So, in the same way all through production the human being has learned a certain method of doing things from which it is mighty hard to change. No wonder we find trouble when we introduce some of the newer things. Anything that is changed is terrible and fearsome and the less you have thought about it the greater the danger seems to be; the greater the unknown the more terrible the thing is. Such a condition is not true of a machine; it is not true with a tool. Once they have been designed to do a certain thing they are pretty nearly apt to do it. Such is the point that I wanted to bring to the focus of your attention.

Of course, we have made a lot of mistakes. We expect to make a lot more of them. I like to make mistakes because I feel the more mistakes I make the more I am going to learn, and therefore I should like to outline a program where I should make about fifty mistakes every day so that at the end of the day I would know fifty things a little bit better than I did before. We are making mistakes all along the line. Some of us even think that our impartial chairman is making mistakes. I am in that class possibly more so than some of the other labor managers. I can realize a little bit more why I couldn't understand some of the decisions he has rendered. Some time ago he said that all his decisions were handed down to him by God, and I being only a mortal being, naturally I couldn't understand why some of these things were not as I thought they should be. I was looking at things almost entirely from the technical viewpoint—machines, labor, tools;—I had forgotten about the human point of view. I was simply acting in an impersonal way, attempting to classify all things in their proper classification. But now I am coming to one of two conclusions;—either the human element in industry is of far greater importance than some of us had supposed, or else God handing down his decisions through our impartial chairman cares nothing for the technical side of things.

THE CHAIRMAN: Under the rules of the Society the discussion is now open to the floor with only one restriction,—the remarks of each individual are limited to two minutes.

Aldo Cursi[1]: I am tempted to spend these two minutes discussing the remark made by Mr. Johnson. He seems to be of the impression that the workers can really have justice in the shop without the union and I intend to try to disappoint him, if I possibly can.

First of all, consider what a terrible thing you have with this machinery. A person is discharged, goes before the impartial chairman, the impartial chairman hears the case, and then the impartial chairman may decide to send him back. Isn't that terrible! If the chairman decides to send the person back it means that he has decided after hearing the evidence, that the employer was wrong in discharging the person. If the employer was wrong why shouldn't the person go back to work? Is it better to have a strike involving one thousand people, as we have had for the last six months on the question of discharging a person, or isn't it better to have machinery whereby the girl can have her grievance heard and if she is right go back to work, and if she is wrong, remain out of work? I think the latter is the best way.

Another thing: Mr. Johnson says: "I do believe that the people should have some hearing, but not by someone from the outside The employer should give the people a square deal." The employer is not in a position to give a square deal even if he wanted to. A man who employs one thousand people cannot know personally each and every one of them; cannot know every day what is going on in the shop. He does not know that in many cases a man, in order to get a job, has to go to the foreman's house with a nice present. It may happen that the foreman has a friend who arrived from some other city to whom he would show preference. The employer has not the time to acquaint himself with all the facts and because of this, and other reasons, you cannot have justice in the shop where there is no union.

I assure you that nobody is so scared as the man who knows that his job the next day depends on the will of the superintendent or the foreman. You say you are not going to discharge any person until the person has a hearing. He will not have a fair hearing. Who is going before the employer to take the side of that person, knowing that he also may get the same medicine as the other fellow?

I want to tell you that I am under the impression that the experiment in Rochester is working out all right, and to you gentlemen I may tell this frankly: the employers have done many things that they have never dared to do before.

Prior to the time when the employers were dealing with the union, there was very little scientific management in the shop. They felt that the employees would object, perhaps stop work and strike if new machinery or change in the system were introduced When the employers try to introduce a new system now, we simply go to them and find out what it is about. If no harm is done to the workers, we tell them it is the privilege and the right of the employer to improve the system of work in the shop, and we do not desire to prevent it.

I want to say in conclusion that I have respect for an employer who takes the old position,—"I am the boss here; you are not compelled to work here; if you want to work you will work under the conditions I want, or you don't work at all." But if the employer tries to be good and says, "You can have your representation but I am going to tell you the kind of representation I want you to have," we don't believe he is sincere.

Mary Gilson[2]: I do not want to assume a superior attitude toward Dr. Jacobstein and Dr. Leiserson, but with all their wealth of experience they haven't had some of the experience that a few of us old warhorses have had. They have had a good deal, but they haven't had the joy of working in a shop where the manager is both artistic and scientific. It can be done,—they can combine the qualities. I want to say, when Dr. Jacobstein says you must sell scientific management to the workers as well as the executives,—that you cannot put scientific management through successfully unless you *do* sell it to the workers. I do not know any organization in this country where it has survived, where the results are real, where there is scientific management that is both scientific and artistic, in which it has *not* been sold to the workers, step by step, and in which they are not convinced that it is the right thing.

We had an experience not very long ago (with due respect to Mr Cursi,—he has a right to his opinion and I have to mine) which convinced me that there was quite a bit of autocracy exhibited in a recent Cleveland labor meeting. One of our workers came in the next morning after the meeting and said, "Miss

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[1] Labor Representative, Rochester Joint Board.

[2] Employment and Service Supt., The Joseph and Feiss Co., Cleveland, Ohio.

Gilson, I am not going over there any more, because they won't let us discuss things. One of the fellows told me to sit down. He said, 'There is your chair and there is the door—take your choice.' I said to him, 'Look here, don't you fly off the handle at me for asking a simple question.' He said, 'Young lady, I got daughters home; they don't use no saloon talk on me either and I am not going to have any saloon talk used on me here.' I said, 'I want to tell you that Mr. Richard Feiss once said to me not to fly off the handle when I get mad.' He said, 'Young lady, there is the door; you were sent over here by your manager, I know.' "

Someone said that after this girl left the room the organizer said: "You are all under the thumbs of Mr. Richard Feiss, you are knuckling to your manager, you are scared, you are scared to call your souls your own, you are afraid of your foreman, too." One of the Italian girls got up and said, "Afraid of my foreman? I should say not! You should hear me argue with him."

But the point is that several of our people said to me, "Miss Gilson, I am not going over there to be insulted. We discuss things over here and have a right to our opinions here, and why shouldn't we there?"

That is what I want to say right here, that unless you encourage people to "discuss things," unless you *do* sell it to the worker step by step, it won't last and it is not scientific and artistic management.

Carl G. Barth[1]: I have enjoyed the papers read this morning perhaps more than any others that have ever been presented to our Society. It was indeed gratifying to learn about this wonderful work that is being done in Rochester to settle difficulties arising between the employers and employees in the clothing industry; but as there are always two sides to every question, I was also glad to hear what Mr. Johnson has to say in warning us not to be too sanguine about the final outcome. The several examples given by Mr. Leiserson of the necessity of understanding national and group psychology in dealing with different nationalities and individuals were indeed instructive. However, when he takes it for granted that we all make the mistake of time-studying an operator without first telling him what we are about and obtaining his acquiesence, he displays the same ignorance of what the real scientific management engineer actually does, as I have invariably found in academically trained men who gather their information from the limited source of the justly or unjustly aggrieved. What are the facts? That Mr. Taylor, the father of scientific management and time study, always contended that time study should never be undertaken in an establishment before some two or three years of preparatory work had preceded it.

To mention a notable case; I worked just two years in the machine shop of the Watertown Arsenal preparing the way for time study, by the introduction of suitable storage methods for materials, routing of work and orders, standardizing machinery and tools, making slide rules, etc., and *in getting in personal touch with a large number of the employees,* before I recommended that Mr. Merrick be engaged to take up the time study of the manual operations connected with the product of the shop.

On Mr. Merrick's arrival, a single machinist was selected for the first object lesson in time study; and before Mr. Merrick took him in hand, he was given a full hour's talk by me about what it all meant, in the presence of his leader, his master mechanic, the Captain in charge of the shop, the Major who was second in command of the Arsenal and who had also been in local charge of my installation work, and Mr. Merrick. As part of my talk I told this man that organized labor had got the idea that our work was detrimental to its best interest; and that, if in spite of what I had to say to the contrary, he felt that he preferred not to be the first one to serve as an object lesson in the matter, no pressure of any kind would be put on him to submit. His answer was that he could see nothing out of the way in what he had been told, and that he declared his willingness to go ahead.

Some time after this I gave a similar though more condensed talk along the same lines to two other machinists, but without requesting the presence of the Major referred to above; and I ended my talk by saying to Mr. Merrick that it henceforth would be up to himself to give similar initiating talks to the other men, as he proceeded with his work.

The strike that almost a year later took place in the foundry at the Arsenal, and which has been cited as the first strike to occur during the introduction of scientific management, was brought on by a thoughtless attempt to make a time study of a certain molding job for which the old price was suspected to be entirely too high, and on which the molders were accordingly forced to waste a lot of time in the attempt to conceal the fact. Inasmuch as nothing in the way of preparatory scientific management had been developed in the foundry, the strike had nothing to do with the introduction of scientific management. I regret to say, however, that too much passes under that name which is only a reckless attempt on the part of somebody to cut down time allowances by the superficial use of a stop watch.

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[1] Consulting Engineer, Philadelphia, Pa.

DR. JACOBSTEIN: Mr. Johnson raises a very interesting point. He asks this question: "Has the machinery thus far functioned successfully only because we have surrendered to labor?" It is a perfectly fair question and I am glad he asked it.

I think the real test will come when the workers are demanding unreasonable things and don't get them; and where they attempt to push their union activities aggressively into fields where management does not want them to go. The crucial test will come with this severe strain placed upon the machinery that must necessarily come when the labor market pendulum swings the other way. I am perfectly frank enough to say that I am not ready to pass final judgment on the scheme until that time comes.

I will not admit, however, that our plan has worked thus far only because we have surrendered to labor. Our cooperative arrangement has tended to stabilize the labor market. For if there had been no organization of labor in Rochester cooperating with the employers, I am sure that wages would have been much higher than they are today. I know that is true because non-union plants are paying higher wages than union plants. We have used the union in a perfectly legitimate way to stabilize wages. The union saw the disastrous effect that might ensue if the law of supply and demand under unusual conditions were permitted to operate to boost wages abnormally high. If we had no collective bargaining in Rochester I know that a number of skilled operations,—notably sleeve sewing, pocket making, off-pressing—would today probably be receiving from twenty-five to fifty per cent more wages than they are getting today. The only reason why they were kept down was because the union believed it to be good policy not to permit too great a spread in the earnings between the various groups.

So that I do not feel that we have surrendered to labor at all. What we did do was to anticipate extravagant wage demands which were inevitable because of an abnormal condition in the labor market, as happened in the munition plants and in the shipyards, where wages went sky-high during the war period. Collective bargaining has served as a stabilizing influence in the Rochester clothing situation.

Mr. Johnson voices a common belief in his assertion that the manufacturers have paid high wages and then shifted the cost to the consumer There is this feeling on the part of the public that labor has joined with capital in the clothing industry in a conspiracy to fleece the rest of the public. I know that charge is made. Need I remind you that profits have gone sky-high in many industries that are not organized? Need I tell you that in unorganized industries wages have gone high where the law of supply and demand operated? I deny that there has been any joint profiteering by labor and capital as a result of any collective bargaining arrangement in the clothing industry in Rochester. The clothing industry in Rochester, as elsewhere throughout the country, was on too low a level prior to the introduction of collective bargaining. Union activity has operated to bring about a substantial increase in wages and has brought the industry up to a level justly comparable to other industries. Do you think that a skilled worker is entitled to a dollar an hour for his labor today? Is a dollar an hour too much for a man who has given his life to the industry? Forty-one dollars is the highest week-work wage operation in the Rochester clothing market. We in the clothing industry think that the workers in the industry are entitled to a wage sufficient to guarantee a decent American standard of living.

Having committed ourselves to that principle we pulled up the workers perhaps a little bit more rapidly than you have in other industries. You raised your workers' wage bit by bit. Through neglect, wages were too low in our industry. To put these wage levels where they belonged, we had to make bigger increases within the last fifteen months. I don't feel that we ought to begrudge these workers the wages they are now earning. Wages in Rochester in the clothing industry are higher on piece work perhaps than they are in the other industries, but I think those of you who have gone through a clothing plant where piece workers are engaged, will agree with me that they are entitled to all they earn. They work hard every minute of the day.

Mr. Johnson doubts the advisability of the employer turning over his management and his labor policies to the unions on the one side and to the labor managers on the other. It is true we labor managers have unusual power, but our respective employers and the Labor Committee of the Clothiers' Exchange tell us how far we may go. For example, on December first there was negotiated a wage increase. That wage increase was very definitely fixed for the market by the manufacturers themselves. But in the practical administration of that award the manufacturers realized that they needed the services of labor experts armed with some technical knowledge of the industry. They therefore instructed the labor managers to spend the increase granted in the most equitable manner.

I am surprised, and regret, that an employment manager should urge, as Mr. Johnson did, this particular point of view, namely: that the employer personally is able to handle the labor policy of an industry and that there is no occasion for turning over some authority to a labor manager. It is my experience that the employment manager has too little authority in industry and is too often a mere clerk, or a rubber stamp, merely carrying out the orders of other executives. In the clothing industry we have made this contribution, that we have shown the employer on the one side and the union on the other, that someone must devote all of his time to the administration of labor matters. But if the labor manager does not properly and intelligently administer these labor policies, according to the wishes of the employer, he will surely have to make room for someone else.

Miss Gilson makes a point. Her question is this: "Can't you have scientific management sold to the workers without tying up with an outside organization?" In the first place, I didn't say it was necessary to tie up with an outside organization. I very carefully avoided saying that you cannot get industrial democracy through a company union, or a shop committee plan, through a Filene inside organization or through a Joseph & Feiss inside organization, or without any employees' organization at all. You have industrial democracy in proportion as your plan of operation has the willing consent of the governed; your industrial democracy will be efficient if it provides a development of leadership, a trained citizenship, and a factual basis for your democracy. If Joseph & Feiss is doing that, I say "Amen." Personally, I don't see how it can be done. My private opinion is that you cannot get the willing consent of the workers until you let them give their consent. Mr. Feiss installed scientific management long before his workers knew what those words meant and I think you will agree with me, Miss Gilson, that perhaps later on they were won over to the plan by the fairness with which Mr. Feiss put it across; but certainly they didn't give their consent and allegiance to the plan with open mind and full knowledge of all the implications of scientific management.

I have not passed judgment on the democracy of other types of organization. What I do say is that we have a democratic plan in Rochester, in the clothing industry. You have it in your way; we have it in our way. To the extent that you think you have it, I ask you to ask yourselves these four questions that I have put to myself: Have I got the consent of the workers? Are we training leadership in the industry? Are we training and informing the individuals in the industry? And is the whole structure on a factual basis?

MR. JOHNSON: I am afraid that I might possibly have been misunderstood, judging from the discussion.

I see no chance for argument between my friend, Mr. Cursi and myself. I hope he hasn't left because I did not mean him to infer in my statement that the worker should not have a place to go to solve his problems or to tell the story. In fact, I think the organization of the employment managers' movement illustrates most forcibly that managers feel that the workers should have someone to whom they could go with their grievances.

We have such machinery in all organizations having a centralized employment department. None of our employees feels that his job depends on the will of the foreman, because they know the foreman cannot discharge them They can only dismiss from their respective departments. I think that condition exists in almost every organization where they have centralized employment. The employee will have a hearing, certainly I want every employee to have the opportunity for a hearing, but my idea was this; these things can be settled within our own organization. We don't need an outside court with its staff of highly paid men, to argue over propositions that should and could better be settled within the individual organization where the proper machinery has been established.

THE CHAIRMAN[1]: The program today has to my mind been most significant and most appropriate. so far as the times are concerned. History very clearly tells a story that has been a common story down through the ages in all times and all civilizations. We find two forces in apparent conflict, if you please, on the problems of the day and age; the progressive forces which advocate the new, and the conservative forces which cherish the good old times and are trying to hold us back to those things which they think were so good under the old conditions; these two forces are always present and active. It is an interesting fact, however, to know that in the light of history we never go backward. We face our problems and are compelled to solve them. That has been the history of mankind.

The industrial relations problem is perhaps the most fundamental problem the world faces today. The definition of what constitutes the rights of the workers is the almost universal problem. It expresses itself in all industrial, economic and political policies. One organization after another is simply trying to secure in its own or in some particular way a better definition of the rights of the workers, so far as they apply to industry and human relations.

The effort in connection with the men's clothing industry is bound to attract attention and consideration. It is a venture along new and somewhat different lines. It is worthy of great thought and study. I wish that we might also have had here today, Mr. Weill of the Stein-Bloch Company, to tell you some of his thoughts in connection with this work. I can only repeat and very poorly repeat some of the points that I have heard him make.

The thought of the manufacturers of the men's clothing industry in connection with this undertaking is perhaps this: that there is an industrial relations problem to be faced. They are not so far proposing or affirming that they have found the ultimate solution of that problem, but they do face and are willing to face the problem cooperatively with their employees. If a solution is to be found it is their belief it can be found by facing it together, facing it with honesty and sincerity on the part of both sides. It is an experiment, if you please, but an experiment from which some progressive advance must in the end be made, if the lessons of history teach us anything in particular.

It seems to me that the divergent views, pro and con, that might be held on these papers and criticisms presented this morning summarize themselves around one fundamental difference. Does the property ownership of business give to the owners the entire rights in industry? Or is there a certain inherent right that belongs to the workers when they give the large part of their lives and their efforts to industry? That is the problem the world has not solved, but one that we shall solve sometime. It seems to me that our political, economic and social discussions are really resolving themselves around the one thing;—do the workers have a certain inherent right in industry equal, or equivalent in some senses, to the property rights of the owners? That is the question that is still to be solved and the differences of opinion that this audience may hold on the subject presented this morning will be influenced by their ideas on this one point.

The big point, it seems to me, in any such undertaking as we have had described this morning, is that it is founded on one big fact,—faith in mankind, faith in human beings, faith that employers and employees can with honesty and sincerity face their common problems in an effort to reach a solution.

The solution of the problem invites the best effort of the Taylor Society,—and the Society is worthy of the effort. I have been in contact with Taylor men in this country for nearly twenty years, and I have never found them in their daily work confronted with the difficulty of securing the cooperation of labor. They may have had difficulty in securing the cooperation of employers; but of the workers, no. The objects of their methods of management are just and fair, and they win the appreciative cooperation of the workers.

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[1] Henry T. Noyes, Treasurer and General Manager, Art in Buttons, Inc., Rochester, N. Y.

THE INDUSTRIAL PROBLEM[1]

By

Ernest Martin Hopkins[2]

MR. TOASTMASTER, Members of the Taylor Society, and of the Rochester Chamber of Commerce; and Graduates of Dartmouth who make me feel so much at home: There recently appeared in the columns of the *Dearborn Independent* over the signature of Henry Ford, a quip to this effect,—that a woman putting a baby to sleep is ten times more attractive than a man putting an audience to sleep; to which Don Marquis made reply in the columns of *The Evening Sun* to the effect that he could testify from personal experience that the one who has responsibility for putting a baby to sleep has a ten times harder job than the one who puts an audience to sleep;—unless the audience happens to be teething.

I have appropriated this bit of facetiousness for this evening because it has been my fortune within the last three months to travel thousands of miles about the country and to see group after group in widely separated cities, and I am as firmly convinced as I am of anything in the world that American audiences were never teething to greater extent than they are at the present time. And the ring upon which they are biting is the query as to why in this great progressive and intelligent country of unparalleled opportunities we find the problem of extricating ourselves from the maelstrom of war conditions so difficult and sometimes seemingly so impossible. It is essential that we come to certain fundamental considerations and certain fundamental convictions as groundwork for the discussion of this subject, to say nothing about trying to arrive at any conclusion regarding it!

The war came like a lightning flash on a summer's night, and revealed not only the beauties of the things which we hold dear in civilization, but it also revealed all that is unattractive and disagreeable, to which we had been shutting our eyes listlessly for so long a period. We are now in a time when we are not so much among conditions which are a complete change or a complete reversal from what existed before, as among conditions which impose the necessity of meeting an accelerated evolution; and within the period of a comparatively brief time we are having to solve hundreds of problems with which under ordinary circumstances we should probably have had leisure to deal during decades.

It ought to be noted that the war has not been different from other wars in that it has been followed by a reaction which has left us with a sodden materialism as against all of the glorious altruism which appeared for a time. Partisanship and acrimony and recrimination are on every side, restlessness and pessimism are all about us, and we find ourselves as members of communities and members of the citizenship of a nation with the responsibility devolving upon us, individually and collectively, to contribute with heart and mind and hand to the solution of problems which, unless they are solved, will not only drag us down to disaster, but will act as a handicap upon contemporary civilization and will withhold from posterity for all time many of the things which ought to be theirs.

So we come to a consideration of what is at the root of the whole problem,—the application of intellectual processes to the industrial problem; for I believe that there are two major factors in the world today which must be given primary regard over everything else; namely, the need of the increase of economic wealth,—which is fundamentally industrial production,—and the increase of intellectual capacity,—which is fundamentally education;—and I believe that the two are inextricably bound together.

We have been cognizant of the fact for a long period that it is necessary accurately to calculate and to estimate the forces of stress and strain upon material substances if we are to be safe in the use of these; and, yet, with all the progress that has been made in evolving such mathematical formulae, it seems to have been only comparatively recently that there has been any consciousness in the human mind that civilization is subject to stress and strains which can be calculated, provided we can devise the social equations and can codify facts sufficiently to draw up the formulæ by which to judge to what extent society can bear the pressure of contemporary conditions, and provided we can evolve the reckoning to know how to meet the strains that are put upon life today.

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[1] Address delivered at a meeting of the Taylor Society held at Rochester, N. Y., May 8, 1920.

[2] President of Dartmouth College.

We see a great ocean liner balanced with bow and stern overhanging the giant wave which is tossing it about, and if we think of it in physical terms, we marvel at the accuracy of estimate which has made possible the building of anything capable of standing the strain, first, of being supported in the middle with both ends unsupported, and next of being supported at both ends, and thus to face great storms and giant seas with hardly a quiver!

We go to the heights of the sky-scraper of the city and we are disturbed not at all by the hurricane which rages without and which, perhaps, even swings the peak of the lofty building through an arc plainly perceptible, for we know that it has been built in conformity with formulæ accurate to calculate those strains.

Thus it is, wherever we go, on bridge or viaduct, on ocean liner or railroad train, all about us we find the absolute reliance, the infallible conviction, that we are safe because of the precision with which these formulæ have been evolved and applied. In like way I contend that there is a necessity upon us—and not only is the necessity upon us, but the possibility is before us—of evolving from this world laboratory of conflict and controversy in a way that has never been possible before, something of like kind and like measure which will enable us to protect the structure of society against the stresses and the strains which are likely to fall.

Obviously, it is with some purpose as this that the Taylor Society exists and that the practice of scientific management exists. Therefore, I think that it is worth our while to consider for just a moment what science is, because in the final analysis science is a codification of all of the factors which have been observable in the past and the interrelations of these together with the deductions from multitudes of incidents, eventually combining all to find fundamental truth.

Science is never a static thing. Science is not something that has been finished in the past. It is not finished now. It never will be finished. But science is something which is calculated on the basis of known factors, which leads us to working hypotheses in regard to factors which are not known; and as these become known, our science becomes so much the more accurate.

But it is necessary that in our definition of science we also include intelligence, because unless science is devoted to an intelligent end, it may possibly become as harmful to the world as it has the possibilities of being beneficial. So far as I know, no one ever held that the accomplishments of the German Empire were not the maximum of the narrowly scientific; but the trouble is, if science is not directed by altruistic intelligence, this self-same science may become the sharpened tool that is put into the hand of him who has an anti-social sense and an instinct to do harm to society rather than to benefit it.

Gerald Stanley Lee has said in "Crowds" that he thought that the time is coming soon when we shall no longer say to men "Be good," but "Be intelligent," because except as men are intelligent they can not ultimately be good. I think in somewhat the same way, in the interpretation which we put upon science, we have a right to say that science is not true science except as it devotes itself to the welfare of mankind and is utilized for the great constructive purposes of civilization rather than those which are destructive.

In the evolution of science, we have to be on our guard not only against those things which would subtract from the benefit which science may be, but also against those things which would detract from the accuracy with which it may be applied. I think that perhaps one of the most fatal things to the scientific spirit is the closed mind. I should say with respect to scientific management that it is necessary for us, if we wish to make progress, if we wish to have any hand in evolving such formulæ as those of which I have been speaking, to be especially on our guard that our minds are at all times open, that we do not tolerate the inertia which makes us decline to take into consideration the new factors which come to our observation, but that we are at all times open-minded and wide-eyed, seeking for the new things which can be developed which might work for the constructive benefit of that with which we are primarily concerned.

The favorite figure of the philosophers for all times with respect to close-mindedness has been blindness. One of the most suggestive poems in our language is Zangwill's poem, "Blind Children"—I think that is the title—in which he pictures the possible joys of a group of children who have always been blind if only suddenly as they came to maturity they might have their eyes opened to the beauties of nature all about them. William James wrote one of his greatest essays on "A Certain Blindness in Human Beings," and the particular figure in regard to blindness which seems to me, perhaps, most important of all is the statement of Seneca in regard to his wife's fool, who was blind, in which Seneca said that the tragedy of the fool's blindness was not that she was blind but that she therefore thought all the world was black. In some such way those of you who have to do with industrial management, those of you who have to do with trying to convince people who are not interested in the desirability, or necessity, of new methods which shall carry them on to an advanced technique and the opportunities of increased production, realize that one of the most fatal things which we have in the industrial situation is that certain blindness,—the blindness of the limited intellect in a man who has come to industrial power, which renders it impossible for him to see and makes him think that all the world is black outside the range of what his limited vision covers.

Then also there is the danger in scientific management, and in the development of the science of anything, of incomplete generalizations and the acceptance as true of things which are handed down to us in the way of axioms, or platitudes to which they have degenerated. We need, for instance, possibly to differentiate between a refusal to work and a refusal to accept employment under prescribed conditions.

There was an article written shortly before the war in one of the philosophical reviews—I forget which one—in which the query was made: "Is liberty a sufficient motive for state action?" And in that the question was frankly faced as to whether or not the world is the gainer by a sense of freedom except as that freedom is utilized for constructive purposes. I think this is a fair question to ask. What is the advantage of freedom if we are not to utilize that freedom for something? And in our own great nation, with all that it signifies to us and all that it promises to us, we have been given the opportunity of freedom from tyranny and autocracy of every sort in a mental and spiritual and physical sense; and under this we have had the opportunities of developing rounded strength such as the world has never seen.

Now we come to the question as to the way in which that freedom is to be used. We have had the freedom from, and now we come to the issue of what that freedom is for? In this connection I was tremendously impressed, on the political side, by a statement of Ramsay Muir's recently, in which he courteously refrained from naming the United States, but in which he said that the whole world at the present time is represented by the analogy of a group of Alpine climbers roped together. All but two of them have fallen over the face of the precipice; one of these is with difficulty maintaining his balance upon the edge, while the most capable and strongest of all is busily unwinding the rope from his waist.

If as a national attitude this is in any way true, or if it is true in any way of us in our individual dispositions toward the problems of the day, it simply means that with all the blessings which we have had, with all the freedom we have had, still we have not acquired the sense of responsibility, the noblesse oblige, which makes it right that we should have this *freedom from,* because we are not as yet disposed to utilize it for the constructive purpose, interpreting it into terms of *freedom for.*

But, personally, I don't believe this is the sense of the nation. I don't believe this is the sense of the industries of the nation. I don't believe this is the sense of the American people as individuals. But I do think that we have constantly to be on our guard lest in some chance moment, or in the crowded business of all things about us, we forget the responsibility which we have at the present time and fail to devote ourselves to making a proper accounting for the liberty which is ours.

In the same way, I think that the scientific spirit is endangered all too frequently by the insufficient importance which we attach to rapidly changing conditions. The world is a far smaller place at present than it ever has been before. I was impressed recently in looking into the history of our own college. The founder of Dartmouth College came up from northern Connecticut to northern New Hampshire, and that trip across a small portion of New England at that time took as long a period of time as it takes at present to cross the Atlantic. Distance is not a matter of miles. Distance is simply a matter of time that it takes a person or an idea to get from one place to another. Returning to the analogy of the Colonial days, the district within the range of man's interest and activity who was in a given period of time able to go only two hundred and fifty miles, at the present time is replaced by a sphere of influence which is world-wide. We have, therefore, brought within the range of intimate responsibility of each one of us the whole gamut of permutations and combinations of international and the inter-racial questions and all that goes with the conflicts and the associations of people abroad and at home; we have all of these brought within the necessity of our daily consideration as against what was the parochial influence of the small community of former days. Therefore, it becomes necessary for us to consider as never before not only the relations of man to man, but the relations of country to country and of continent to continent.

In the study of any such relationship, we necessarily come to another fundamental principle in the development of the social science of the present day; —that the problems which were individual problems in the past are replaced now by what we may call mutualism or cooperation; and that except as we recognize this, we are not in a position to recognize or to appraise the importance of what is taking place about us.

There was in the year 1785, or thereabouts, an elderly settler, the only one, in a brook valley in what is now the township of Union, New Hampshire. He had made his clearing in the forest. He had erected his buildings. He had gathered stock about him and he had become well-to-do. Then another man moved into the brook valley five miles below, and every morning the old settler got up and looked down the brook valley and saw in a wisp of smoke the evidence of his neighbor. One morning he got up and started to pack, and he gathered his stock together to drive it a hundred miles north into the wilderness. And responding to query as to what he intended to do, he said he was moving out because "the world had not become so small that he had got to see anybody's smoke."

Of course we have therein the spirit of individualism, which was necessary to its time for the settling and development of this country. It was necessary that the spirit of individualism be rampant in men's hearts and minds if they were to cross the Atlantic and settle this continent. It was necessary that the spirit of individualism rage always within them if they were to cross the Appalachians, to subdue the plains, to cross the Rockies, and finally to gain the Pacific slope, fanning out meanwhile to South and to North.

There comes a period, however, within the history of every nation when physical impediments having been overcome, and when material obstacles having been conquered, civilization turns back upon itself; when the conflict which has hitherto been held with nature from then on becomes a conflict between men and between classes; and except that conflict in this great United States can become transmuted into cooperation and a thing of mutual concern to find the right solution, we have to reconcile ourselves to the fact that sooner or later our nation goes the way that other nations have gone, under circumstances not very different. It is for this reason, it seems to me, that we need to put our attention as never before upon the affairs of the world as inclusive rather than exclusive; and that instead of emphasizing the points of difference which exist among us and which exist among the peoples of the earth, it is necessary for us to put our emphasis upon those things which bind all together, excluding consideration of minor things until we may give our attention to them as a united group.

I have been talking in very large generalizations—I realize that—but still we are making some approach toward inclusiveness. We at the present time find our lawyers gathered together in bar associations. We find our doctors together in medical societies. All professional men have their professional groups. And likewise, the industrial leaders combine in manufacturers' associations and the workingmen combine in labor unions. And even more than that;—we have combinations within the communities and the combinations of community delegation of their responsibilities,—the police responsibility, the fire responsibility, the board of health,—all of these are collective propositions.

But these are not enough, for underneath them all we have the problems of the cleavage which has come through the processes of industrial evolution, which at the present time thrust themselves into the face of every government upon the earth. And not only that; they trust themselves into the mind of every thinking individual, demanding a solution and threatening, unless that solution is found, that calamity inevitably must come.

The effects of the war are monumental effects, and yet they are not as remote and as complicated in some of their phases as we are likely to assume. Take the question of immigration alone. From the period 1909 to 1914, the net immigration into this country, a potential addition to the productive force of the country, was somewhere about 4,000,000. But from the period 1914-1919 it shrank to only a little over 400,000. Now if you have a shrinkage in the normal accretion to the productive force of the country of something over ninety per cent in a half decade, you are going to have industrial shortages, you are going to have wage increases, you are bound to have most of the complications which arise from the upsetting of the law of supply and demand in regard to labor, such as we have had in recent years.

But this is not the most important phase of even that particular question. If you go back to 1890, I think it is, in the census report, you will find that the center of emigration from Europe to the United States was located just a little outside of Antwerp. Now, let us analyze just for a moment what that means. It means that the emigration which was coming from Europe to the United States through all previous time and at that particular period was an emigration from countries which essentially had the same basic speech as do the inhabitants of the United States. But more important than that, they were coming from countries where law and order had been established from time immemorial, and where the sense of law and the recognition of law was entirely apart from any thought of tyranny, oppression or injustice. It means that the emigrants were coming to the United States from the British Isles, from France, from the Scandinavian countries, from Germany and Italy.

But, if you examine the last census you will find that center of emigration from Europe to the United States has moved across Europe and is now located at point just a little outside of Budapest. This means that the emigration which has come to the United States in recent years is the emigration from countries which, through long ages, have known nothing except tyranny and autocracy, to whom the word "law" is a mockery, whose speech is fundamentally unlike our own, and who come to us with suspicion of every sort of authority or control that government tries to exercise.

Meanwhile, we have no opportunity to be self-righteous in regard to the matter, because fundamentally, the development of the unwholesome plan of that emigration into the United States and the encouragement of it has been an industrial exploitation to secure a working group which is sufficiently without knowledge and sufficiently without access to knowledge so that it can not be able quickly to aspire to the better conditions which the more intelligent emigration from the western part of Europe has achieved.

And I want to add—and I am absolutely certain of my ground when I say this—there has seldom been any bona fide attempt on the part of American industry to absorb these groups of people until within recent months; and I could even now take you into industrial operations where I have been, where it is asserted that the less these people know about American institutions and the less access that they have to American speech, the better for American labor and American industry in the long run.

So we find these problems thrust upon us from the outside, and we find, moreover, these problems arising from within our midst, due to a general theory from which we have not yet got away, that the common labor production of the world is the responsibility of a class by itself, and that unless some men are kept within that class, we shall be short of labor which we need, and industry will, therefore, be handicapped. We have not yet nationally, or as a national industrial establishment, got to the point where we can recognize—or we haven't recognized at least—that as you build up the capacity of labor, so your industrial production is going to increase and new devices and the new processes will be found for the accomplishment of industrial work, and the economic surplus of the world will increase, and being increased, will add to the comforts and satisfaction and the happiness of every man and woman and child within the civilization in which we live.

These are some of the things near to us and there is much more that ought to be said. But I will have to leave you to fill the gaps because I want very briefly to go back and to suggest the point that the social formulæ which must be established, those formulæ which must be devised in order that we may be able to calculate the stresses and strains upon society, are to be found in history, in economics and in philosophy, and that the data is available if only we want to utilize it.

If we should go back nearly a thousand years from the present period, we should find all western Europe in ferment. We should find communities which had scarcely had inter-communication with communities a few miles away, ill at ease and the resident youth in unrest. And we should eventually see, under the impulse of the religious incentive which led men into the Crusades, the youth of western Europe arising and responding to this religious impulse and migrating down across Europe into the seacoast cities of Italy, whence we should see them embarking and going to the Orient to wage a religious war.

The point I want to emphasize in this is that all history shows that the reaction from war has been of the kind and largely in proportion to the motive which led to the war. There are surprising parallelisms likewise between the Crusades and the great transmigration of the recent war.

To begin with, the youth of western Europe, as I said, went to the seacoast cities of Italy to embark. The seacoast cities rapidly became seaports. A merchant marine was built. The men were transported. A system of finance which become international was devised. So the invading hosts were taken from Italy; but it was not profitable to bring back the empty ships and thus there was brought back into Europe the products of the Orient. Even in small details the changes in civilization were almost beyond calculation, as for instance to the tables of Europe, which had known hardly any variety in diet, there were brought the spices and the sweets and the fruits of the Orient; and there were brought the styles and fabrics of clothing, the silks and satins.

But more important than all these, there was brought that great accumulation of educational material, that great store of educational narrative of the past. The classics were brought in; and what had been the period of intellectual darkness in Europe, became transformed into a dawning period of intellectual light. Men began to study and to think and to query. Then, brought back into that state of stimulated intellectual activity, there came in time the returning hosts from the Crusades; men who had been detached from their accustomed tasks, who had been separated from all that they before had held conventional and prescribed. And they came back with agnosticism and with cynicism, and with the query of "Why?" on all lips.

Out of this there sprang eventually the greater intellectual revival, and in time the Protestant Reformation, of great advantage not only to the world, but perhaps the greatest single advantage which ever came to the Roman Catholic Church, because of the Protestant revival there came that great religious and intellectual challenge which made for a betterment of all conditions, within or without the Church.

Thus we have the absolutism of the Church overthrown, which was the strongest and most powerful absolutism that the world had ever known, overthrown by the natural reaction of a series of wars which had been stimulated on the basis of a religious impulse. However, absolutism has a way of not disappearing, but of shifting from support to support, and the Church having unloaded absolutism, it was settled upon the shoulders of the State, and the statecraft of the next few centuries became the absolutism of the time; and the greatest political absolutism which it was possible to conceive.

Then, hastily passing over the centuries, we come to the wars of the eighteenth century, which were wars for political supremacy and the enhancement of states; and the French Revolution came with its momentous consequences. The motive which had led to the wars in its turn bred the reaction in kind and in quantity, and we had the beginning of the democratization of the State.

Again absolutism passed,—not out of the world, but onto the shoulders of a new power which was arising, the economic power. This power, beginning with the industrial revolution, can be sketchily described as follows: There was the development of the machine; there was the development of power; machines were then centralized around the power, and we had the beginning of the factory system and later factory design, with all that followed in their train in the matters of planning and routing, etc., and of scientific mangement; and then within the memories of all of us, the attention to personnel.

I have been told that when Governor Hughes examined the contracts for the barge canal in this State of New York, he found that there was a very careful specification as to how the mules and horses should be fed and housed, but that there was no specification whatever in regard to the treatment of the labor. And whether it is true in regard to this particular project, it is even at the present time true in many of the great contracting propositions of the country at large. Yet, due to the evolution of scientific management, the time has come in which we have become conscious of the fact that not only the machine, the factory and power is important, but that eventually we must concede the major importance of the individual.

We are entering into a period when intelligent scientific management cannot be imagined which does not recognize that the source and very essence of the whole proposition in regard to the development of industry here in the United States resides in the incentive which can be afforded to the individual worker and the interest which can be aroused in production.

We have had this great war, out of which we are just trying to extricate ourselves. Fundamentally it was an economic war. The blockades were an economic weapon. The devastated areas were an economic weapon. The submarine was an economic weapon. As somebody has said, the armies were but the mailed fists with which the warring nations struck. The strength of the war and the resources of the war were back in the shops and in the industries of the individual countries.

We had millions of men detached from the circumstances into which they had grown and where inertia had been holding them with hardly a question, and they went abroad. There they were brought into contact with new customs and new peoples and they learned to think in new terms. There was an intellectual stimulation in the whole experience. And eventually they came back into the United States of America with very much less of a disposition to accept what society arbitrarily deals out to them without any consideration on their part, and they have come back with the determination to regulate their individual lives to a degree such as never before has been within the determination of a people.

Thus we are brought down to the final fact that, just as the absolutism of the Church, just as the absolutism of the State, now the absolutism of this economic power is shaken; and we come to the proposition squarely that the whole history of the authority and power, if we analyze it, has been that it flows from the few to the many; and that having flowed from the few to the many it is never restored to the few. Under those circumstances, it is no longer a debatable question whether we shall operate economically and industrially on the theory of absolutism; we come down to the proposition pure and simple that cooperation and mutualism, which have been found inevitable in other walks of life, which have been the result of the reactions of other impulses in previous wars, must be paramount and must be recognized to a degree that they never have been recognized before.

Democracy would be a very deadening thing if out of this we were justified in drawing the conclusion that there is to be one great level of population, one great level of intelligence, one great level of wealth; and I have never been able to see anything plausible or attractive in the socialistic theory that subscribes to anything approximating this proposition. I believe that we are coming to a time when assertions of the Declaration of Independence must have an entirely new meaning to us because they must mean that every individual shall have the opportunity, so far as it can be afforded, of developing to his maximum capacity,—in other words, the well-known scientific management principle that every resource shall be used to its maximum effect.

Somebody says: "But hasn't that been so?" The answer is "No." I have talked with employers occasionally who have said that they thought in the large it has been so. But I challenge anybody to go into some of the great mills, or into some of the great shops of this country and to find any evidence whatsoever that there has until very recent times been any such importance attached to the individual welfare of the man or woman worker as there has been attached to the mechanical equipment, or the great sources of power, or even the structures within which the work is done. After all, we have some such situation as this; whereas in the craft guild period the tools were owned by the individual man, and also the house in which he worked and trained his apprentice (those were the days of the apprentice who desired to create an article that should be an advance on that of his master) we find ourselves today in a period when ownership of those tools and those houses has constantly become restricted, because it has not been possible for any except those with financial resources of increasing magnitude to control the tools by which industry is to be developed.

Parenthetically, I would state that I am not saying this critically because I am not at all sure that the industrial revolution could have been utilized or could have been carried through, or perhaps have become profitable to society at all, unless there had been a period when attention was concentrated as it has been concentrated; and when those who were able to gain command of the sources of production did gain command of them and develop them with a compact and quickly available supply of financial resources.

However, we have come to a time when the speed of the machine is not the only criterion of what the individual workman should do, but when opportunity for self-expression must be given to the individual workman as at no time in the past. We have, in short, come to that period when we must make the distinction which Emerson makes in one of his essays between the man working and the worker; because if you put a thousand machines into a plant and you bring in a thousand men and train them simply to a standardized running of those machines to maximum capacity, you have ceased to have a thousand individuals there; you have come to have a class, a quota made up of a thousand impersonal units out of which a dozen or a hundred can drop to be replaced by others who shall do the same standardized thing. And it is necessary, therefore, if we are going to get the increased production which it is necessary that we should have, if the prosperity of the world is to be enhanced, it is necessary that we should put back into industry somehow the stimulus and the incentive to work on the part of the individual.

It seems to me that it is a proposition which should not need to be argued in a group like this, that production has never yet been increased by legislative enactment; that industry has never yet been increased by legal injunction; that production has never yet been increased to any extent by evangelistic oratory. But production, when it has been increased, has been increased by making the agencies or the tools of industry more effective and up-to-date. The advance in production to which the scientific management group has contributed so much has been secured by making the mechanical equipment and the organization of that more effective.

But we have come, I believe, to the limit of that, except as it is carried on in hand with the development and the encouragement of the individual worker, which gives him a sense of responsibility and a stimulation to work, which makes him desire to work because of his understanding that economic wealth is created day by day and does not exist as a great reservoir, somewhere.

I believe that education has a tremendous responsibility in this whole matter, and I do not mean by that simply the formal education which is given within the walls of an institution; I mean the education which comes from a general desire, bred in the minds of the public at large, that everybody's intellectuality shall be widened and deepened and made more powerful; and if it were possible for us at the present day to get into the minds of men everywhere the fundamental fact that wealth isn't a great store which can be drawn on indefinitely without exhaustion, but that wealth is that which day by day is created by the individual hands and the individual minds of the workers, I believe under those circumstances there are few in the country who would be so perverse as to wish not to meet their responsibility.

But we have these scattered groups of foreigners from the ends of the earth, we have groups from Russia, we have the great groups from southeastern Europe, who know nothing whatever about our language, nothing about our institutions and about the fundamental economics on which the industrial establishment of the country must stand if it stands at all. Are we without responsibility for their ignorance?

And so, we come to this question as to how, if at all, there can be put into the minds of men the desire to work, and to the question whether there is the possibility in the disordered state of the present civilization of accomplishing anything in this way. The only answer that one can make in response to an interrogation like that is to point to experiment after experiment, success after success, all over the country, where the barriers have been taken down, where men have ceased to view work as an unpleasant job but have begun to look at work as something which interests them and of which they understand their part. For it is one of the accepted propositions at the present time,—somewhat accepted, at least and neccessary to be accepted much more widely—that the production of the world is going on against the distinct disinclination of the productive force to produce; that as a matter of fact, the job, instead of being something which is done for the enjoyment of it, is something which is done in order that the means may be found for self-expression in some outside manner.

We ask, how are we to get rid of this incessant demand for higher wages? How are we to get rid of this insistent demand for lower hours? But just as sure as can be, we are never going to get rid of these as long as work is something distasteful and is something entirely devoid of interest, and with respect to which the only opportunity for self-expression comes within the hours and the activities outside the working period.

There may be cheap and tawdry ways of expressing one's self. Illegal, immoral things may be done; troublesome things may be done, irritating in the extreme. But the man who is working simply to acquire the means for self-expression is going constantly to seek for more money and less hours in order that he may have greater opportunity out of working hours for self-enjoyment and a greater means whereby to secure it.

We have, I believe, simply these two options; if industry must be maintained on the present basis, then we must plan constantly to be met with the recurrent demand that hours be shortened and that pay be increased. Or, we have the opportunity on the other hand to inject back into industry something of the opportunity for self-expression, the development of one's personality, so that man shall understand his responsibility in the economic world and shall have some joy in meeting it.

This has been done and it has been done not infrequently. During the war some of us were interested in an experiment which was undertaken,—the introduction of patriotic speeches into the plants of the War Department, the Navy Department, the Shipping Board, the Railroad Administration and elsewhere. I say some of us were interested. I don't know how many of us were confident of results, but anyway, it was undertaken in good faith; and sincere men went about from place to place and they sang the glories of America, and then they ended with an earnest appeal to patriotism and to sustain production. A friend of mine wrote to me saying: "If anybody would tell me why I am boring a hole in a piece of steel one hundred and fifty times a day, I should go at my work with a spirit such as I have never had before." And then he continued: "I don't know whether this piece of steel goes into a machine to make a ship, into a ship itself, or whether it is put into a ship to take abroad, or whether something else is done with it. And when somebody asks me what I am doing in the war, I haven't the faintest idea and can't find out."

I went not long ago into a factory where they were making metal implements. A man was stamping out a little triangular piece of steel and I said to him: "What are you doing with that?" "I don't know." "Where does this come from?" "I don't know." "Where does it go to?" "I don't know. The only thing I know about it is I have to get out so many hundred an hour."

The superintendent of that plant on being told of this said that he was going to undertake to find out how many men there were in the place who were in like ignorance. I told him that if he had my experience he would find out that practically all of them were. He started through the plant and came back and said: "We are going to begin a development course right away and we are going to have these men understand everything from the incoming of the raw materials clear up to the sales policies;" and I recently heard that it was being carried out with fine effect.

There is another plant, in many ways a model plant in this country, in which each day groups of a dozen or fifteen or twenty visitors are taken through by guides and are shown this process and that process, and are told the whole aim of the industrial establishment. And one of the men in that establishment said to me: "Why is it that all these people who don't work for this company can find out all of these things and none of us who work for it can?" Later, that company installed a system by which their men could find out, and they took groups of their own workers, and went with them clear back to the raw materials. They showed them where the raw materials came in, and took them through the plants and showed them the processes and showed each individual man where his function came in; and when the process was completed, they took them up and set them down in the sales offices, where they had one of the sales managers come in and talk to them just as though they were salesmen going out on the road. The company told them what the economic significance of this proposition was, what the economic need of the product was and why it was sold and where it went, and the advantages which the company argued would come to the world at large if every man, woman and child used the product.

The outcome was that the men and women in that plant went back to their work with an entirely new attitude toward and enthusiasm for what they were doing.

I was told less than six weeks ago, up in the Northwest, of a lumber operator who had a strike, the circumstances of which, I understand, have been written up in one of the popular weeklies. This man, for the first time in years of operating recently found labor trouble within his ranks. He found his men going out one day and he asked them what was the matter, and the men said: "We are on to you. We know all about it at last." He said: "Just what is this that you are on to?" It then developed that they had been told by some one who had come among them with the intention of forming an outlaw organization, that the proprietor received sixty dollars a day on each man's work, and that he was paying on an average only six dollars a day, whereat the men said: "We deserve a bigger share of this."

The man said to his employees: "You come back with me, on my time," and they went back. He pinned some wrapping paper on the wall and went through every routine process and every accounting process from the beginning to the end of the manufactured product. And out of that understanding there came an unprecedented contentment within. He was quoted to me as saying he had never had such good conditions, and of adding, "Believe me, from now on I am not going to spend my time so much in explaining our cost accounting to the banks from which I am borrowing money, as in enlightening our own workers and interesting them in what is done."

These are small details, but they nevertheless represent some of the necessities under which the industries of America are laboring at the present time; that they shall, instead of continuing to subtract responsibility from the individual worker begin to throw responsibility on him; that instead of considering the attempt to express personality and to show initiative a handicap for which a man should be disciplined or discharged, they shall consider such attributes as an asset and shall see that the man is given his opportunity to work out what can be worked out on that basis.

The matter of shop committees, the matter of labor organizations, the matter of many similar things, is in the last analysis the simple desire on the part of the individual to feel himself a part of the business. I have been in labor meeting after labor meeting, where I have been perfectly sure that most of the speeches were not inspired so much by any idea of an innate weakness in the mechanical process of the plant, as because of a weakness in the company attitude toward its personnel, which made the individual man simply bursting with a desire to express himself somewhere; and being unable to express it in the plant, he went outside to express it,—and often expressed it in destructive terms designed to work against the prosperity of that very thing on which he himself was dependent for his own welfare.

I had a personal experience in a strike a few years ago in which it was difficult,—not to say entirely impossible—to find out what the real contention was. One day going through the halls of the building where I was at work, I met one of the girls who was leading the strike, and I turned to her and said: "What is it, anyway, that you people are after?" She looked at me, and tipping back her head in a laugh, said: "We are just after what we are getting, —the chance to sit down and talk over the business with you guys."

It is a perfectly normal human impulse, and it is an impulse that must be recognized. With a body politic such as is ours in the United States, it is inevitable that we shall have more of that, until we devote ourselves to the particular phase of the industrial dilemma which has denied to the individual worker so much which must be restored to him before we can ever hope even to begin the solution of the difficulties now disturbing us.

Over across the river from the little northern New England town in which Dartmouth College is located, there is the Vermont village of Norwich, where, in former days, a winter course of entertainments made the local church a Mecca for the Dartmouth undergraduate body. One of our most respected graduates tells the story that, in those days when still there was a strong feeling in Hanover against the influence of the stage, in this neighboring village a panorama of scenes from Pilgrim's Progress was advertised. The redeeming feature of this particular drama was that it was to be presented in the church; and its ethical value being thereby guaranteed, no question was raised about its helpful influence upon